THE AUTOMOBILE

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Lamps for Fast Night Travel.

Nautical Searchlights Adapted to the Needs of Motorists Who Seek the Delights of Illegal Speeds in the Hours of Dusk and Deserted Roads.

IF fast automobiles are to be used in this country, the driving must be done largely at night, when there is little other traffic on the roads, but even so a sharp lookout must be kept for belated wayfarers, for defects in the road surface and for sharp turns and sudden gradients. The delightful speed of 30 to 40 miles an hour is impracticable unless the driver can distinguish the road and traffic conditions far ahead and with the same certainty as by daylight.

No one has as yet proposed that the hours from 10 o'clock at night till 4 o'clock in the morning be given over to rapid traveling motorists as their own, during which period they might indulge the pleasures denied them in the daytime; neither has any proposition been made for holding long distance races during such hours exclusively, although the sport of a summer night race under the proper conditions would probably have a charm that would carry enthusiasm for automobiles far and wide.

Something of this sort may, however, have been in the minds of those who have recently perfected a search light for automobiles particularly intended to bring rapid night traveling under the proper conditions. Their idea contains possibilities upon which a lively fancy may love to dwell; and, economically, it should appeal to all who have paid thousands for fast machines and who at present can rarely use them at anything like their capacity, without getting in conflict with the police or with their own conscience.

MOTORING WITH A SEARCHLIGHT 1,000 FEET FROM ROADHOUSE AT JUNCTION OF THE PORT RICHMOND AND ST. GEORGE ROADS, STATEN ISLAND, NEW YORK.

The accompanying illustration shows somewhat the effect which may be obtained with the acetylene search light lamps to which reference is made. They throw a triangular beam of light nearly a mile in advance of the speeding machine, and a beam so compact and concentrated that everything in the road and the road itself are revealed in sharp distinction from the surrounding dusk. The light is the inverted projection from an acetylene gas flame placed in the focus of a hollow lens-reflector.

The shape of the gas flame is about like Fig. 1. Its light, inverted by the reflector, sweeps the road with a cross-section of the beam, as in Fig. 2. As the upper broad portion of the flame yields more light than the lower, narrow portion, the broadest and brightest light strikes on and slightly above the road, the narrower and less brilliant light from the beam strikes objects farther above, which are of little concern to the driver except to identify the landscape. Were all of the flame in the exact focus of the mirror-lens, the projected beam of light would be too thin for usefulness. Its diameter would be only that of the lens. But most of the flame is not exactly in the focus, and so the light is slightly spread while still retaining its shape, and the whole road is illuminated.

The arrangement which has been devised for automobiles is nothing but a small navy standard search light fitted

with an acetylene lamp in place of an electric arc light equipment. With an 8-inch lens the same device is used for locomotive headlights. Its great power and range are solely due to the nature of the reflector. The source of the light is no stronger than it might be in an ordinary acetylene headlight that sends the light out in shape of a cone, rapidly diffusing it and weakening it. By the search light principle it is held together in a well-defined beam of very slightly diverging contours, and being confined to a small cross-section area, is intensified, as perfectly well understood by all persons familiar with the search lights used on yachts and other steamboats. In railroad work the sharply defined limits of the light are of especial value, as the whole volume can be confined to the track on which the locomotive is running, and an engineer coming the other way on a parallel track or waiting at a siding, is not in the glare, but can see the ties on his own track right up to the oncoming engine, on straight stretches.

So as to obtain some part of this advantage from the search light for automobile use, the equipment which was placed in the market during the recent show at Madison Square Garden, is provided with a controlling lever by which the light may be kept on the road around curves. It might seem absolutely necessary that this controlling device should be connected with the steering gear so as to operate automatically, but it will be seen from the drawing showing the construction of the lamp that there is always a direct broad light on the road, closely in front of the machine owing to the fact that the lens and mirror are combined behind the flame, so that the front glass can be simple plate, which permits diverging rays directly from the flame to pass out through the intensified beam which at this point, of course, is no wider than the face of the lamp. If an automobile has one search light and two ordinary lamps in front, as customary now, the latter will also give the light necessary at close quarters. On a long, continuous curve an automatically directed search light would, also, at no time, sweep far enough ahead on the road, while by hand control the driver may in a moment swing it around to illuminate any desired distance ahead. From this it may be seen that automatic direction of the light by the steering gear—if this should appear a desirable improvement, for example for races—must at all events be supplemented with hand control.

What imparts immediate importance to the whole subject for automobiles is the number of orders already placed for searchlight equipments. At the New York show such orders were given by 56 owners of large and fast machines.

The distinguishing mark between these projectors and ordinary acetylene gas lamps lies, as already said, in the qualities of the reflector-lens, and in the same feature is found the explanation of their greater cost, which is said, however, to be offset by the economy in upkeep effected by having a gas generator of large capacity and specially careful construction.

In all lamps in which a metal reflector serves the purpose of keeping the light rays together, a great percentage of light is lost from tarnishing of the polished metal surface and because it is practically impossible to shape thin metal with any accuracy of curvature or to grind and

FIG. 1—SHAPE OF GAS FLAME.

FIG. 2—CROSS SECTION OF LIGHT BEAM.

polish a heavier metal reflector on any other curve than that of the true sphere, and a spherical surface does not reflect in parallel, or nearly parallel rays, except within close limits that are impracticable in lamp design. A glass lens in front, on the other hand, intercepts light and prevents it from spreading immediately in front and at the sides of the vehicle, and, what is worse, it is exposed to fracture, which, with an accurately ground lens, would mean a considerable expense. The problems involved in these considerations are solved in the combination of lens and mirror used in the nautical searchlights and now proposed for automobile headlights. Fig. 3 shows the

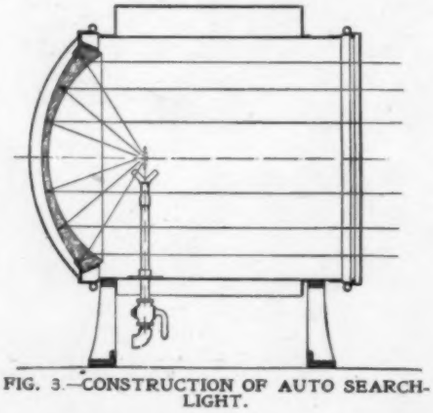


FIG. 3.—CONSTRUCTION OF AUTO SEARCHLIGHT.

construction. The projector consists of a cylindrical metal drum in the rear end of which is mounted the lens-mirror and closed in front with a circle of plate glass. The mirror is the silvered spherical back of a deep bowl-shaped lens, which is backed by a heavy metal cup of corresponding spherical shape. The front surface of the lens is ground parabolic with a much shorter radius (speaking with some inaccuracy) than the back of the lens, making the latter only 1-4 inch thick at the center, against 1 inch at the edges. This grinding of the lens corrects the aberration of rays which would take place from a plain, spherical mirror, and the metal cap forming the back protects the glass against fracture and the quicksilver against abrasion. The flame from the acetylene gas burner is, as already stated, placed in the focus of the mirror-lens, and this focus with a lens of 8 inches diameter, is only 3 1-2 inches at the axis and only 1 1-2 inch in front of a vertical plane laid over the edges of the lens. The short focus increases the percentage of light reflected and permits the use of a short drum without much spreading of unreflected light through the front glass. The horizontal lines in the drawing show the direction of the reflected rays.

The gas generator intended for these lamps holds four pounds of large lump calcium carbide in a tray with a grate bottom, which separates the waste lime from the dry carbide (assisted by the jolting of the machine), thereby permitting the lamp to be lighted and relighted repeatedly without waiting for the generation of gas.

It is stated by the maker that he regularly runs an automobile provided with this headlight equipment at speeds of 30 to 35 miles per hour on clear, dark nights, and that the lights will show up a man or a carriage at a distance of 1,500 feet, giving ample time for the observance of the rules of the road.

As a new development in fast and strenuous automobilism, and with special regard to a modification of the present laws and the inauguration of long distance night races, the automobile searchlight calls for the attention of those sportively inclined.

French Ideas Anticipated.

In the Haynes-Apperson cars at the New York show the motor mechanism was practically unchanged from last year, for, as the company says, they could not very well imitate the latest French improvements, as these had been incorporated in the company's product for several years, especially those relating to greater flexibility of the power. Some changes were noticed on other points, however. The new models were fitted with roller bearings throughout, except on the motor shaft and crank. The radiation area had been increased 40 per cent. and the cooling coils extended horizontally under the front boot which was remodelled to resemble the ordinary bonnet more than in the older patterns. A phaeton with lever steering and another with wheel steering were shown and on the latter the steering column could be included at varying angles, giving varying height to the steering wheel so as to fit drivers of different stature. The company's special steering knuckle design, which is equivalent in effect to internal pivoting of front wheels, was preserved.

Radiator Area per Horse Power in the Modern Gasoline Automobile.

BY HERBERT L. TOWLE.

Although radiators of one sort or another are now recognized as a necessity in all gasoline machines with water-cooled motors, there is very little public knowledge of the amount of surface necessary in these devices per horse power. When they were first introduced, radiators were employed rather to retard evaporation than to do away with it altogether, which latter result, if not absolutely attained, is very closely approximated with the large surfaces most in vogue to-day. A considerable diversity of practice is therefore to be expected, and is in fact found.

Naturally, the rate of dispersion of heat from a radiator depends on many things besides its area; as, for example, the freedom with which air passes through it, the speed of the vehicle, the velocity of the water in the tubes themselves, and also the diameter and thickness of the fins, if these be used. That is to say, a thin flange of large diameter, moving at 20 miles per hour, may be relatively cool at its outer edge, while a thicker fin of the same diameter might be warm or hot. Of course, a flange too thin to keep itself hot is badly designed, as a smaller diameter will answer the purpose practically as well.

In the hope of throwing some light on this subject, a partial canvass was made of the more important machines at the Madison Square Garden Show. A few of the exhibitors were able to state their radiator areas definitely, but in most an approximate measurement was the only thing available. The exactness with which it was possible to take this varied somewhat, but the average error probably did not exceed 10 per cent. As it was obviously impossible to reduce the various factors contributing to the efficiency of the radiator to precise terms, no attempt was made to go into the proportions of the fins or the rapidity of circulation. The maximum power, however, and the maximum speed, are given as nearly as possible, and also the type and general arrangement of the radiator. It will be evident from the results obtained that, while some makers are satisfied merely to prevent actual ebullition without keeping the temperature much below the boiling point—a condition which probably contributes to fuel economy, but which permits more or less rapid evaporation from the hot water in the tank—other makers seem to proceed on the theory that too much surface is an impossibility, and crowd more surface into their radiators than would be really necessary in a steam boiler for the same power. Most of the radiators measured were of the flanged variety without fans, but a few special cases were considered also.

ORDINARY FLANGED RADIATORS.

Among the machines using the ordinary flanged radiators, by far the smallest relative surface was found on the "Empire State Express" Mors car, sold by Fournier to W. R. Hearst. This machine, said to have a 60-horse power motor, had 43 1-3 feet of 7-8-inch tubing, with fins 1 15-16 inches square, spaced 3 1-2 to the inch. The calculated area of the tubing is approximately 10 square feet, and of the fins 86 square feet, making a total of 96 square feet. This is about 1.6 square feet per horse power. This meager allowance may perhaps be explained on the assumption that the machine was built for a racer, in which case its speed of 60 or 70 miles an hour would no doubt justify the small surface. As the machine was shown equipped with a tonneau carrying five people, it may be questioned whether the moderate speeds at which it will mostly be run in this country will be sufficiently offset by the throttling of its charges.

Next in order is the Berg, whose radiator was described on page 144, issue of January 31. It is of the new Panhard type, with small tubes and elongated fins 15-16 inch wide. The tube area is about 12, and the fin area about 33 square feet—a total of 45, or 3 square feet per nominal horse power. The engine, however, is without doubt capable of exceeding the 15 horse power at which it is rated. In this connection the designer, in conversation with the writer, frankly declared that his radiator area was the result of trial and not of calculation, raised the point that the required heat dispersion might depend on the compression in the motor cylinders, a high compression calling for liberal radiation to keep the cylinders cool. His own engine, he said, had a low compression. While this has undoubtedly been found true in some instances, the writer is inclined to regard it rather as showing that a high compression motor liberates the bulk of its heat in the combustion chamber, instead of, like the low compression motor, distributing its heat losses rather evenly through the stroke. In a word, the high compression motor needs larger water spaces about the combustion chamber, but is less in need of cooling near the end of the piston's travel. Certainly, as high compression gives, with proper speed, a higher efficiency than low compression, the total heat loss to the jacket cannot be greater, and has usually been found to be less.

THE BERG MACHINE.

The Berg machine has four forward speeds, and the maximum for the touring car, though not stated, is probably about 40 miles an hour.

A four-cylinder Panhard, rated by Smith & Mabley at 15 horse power, had the ordinary radiator with square fins. Its surface was approximately 57 square feet, a scant 4 per horse power. The same radiator was fitted to the new 3-cylinder Panhard, rated by the makers at 8, and by Smith and Mabley at 10 horse power. Doubtless the latter figure is sufficiently conservative. At a guess, its speed might be 32 miles an hour, and that of the larger machine 35 to 40 miles.

The American C. G. V. 15 horse power car had circular fins deeply crimped. Neglecting the crimps gave an area of about 60 square feet, but probably 70 would be nearer right. The maximum power is doubtless better than 15, but on the other hand it may be questioned if the air passes through this radiator as freely as through the Panhard.

A 24 horse power Robinson car, with four cylinders 4 by 6 inches, showed, from rather incomplete data, about 96 square feet, or 4 per horse power. The maximum speed of this car probably does not exceed that of the cars just mentioned. The radiator was of the ordinary flanged type, quite like the Panhard.

TOLEDO 18 HORSE POWER.

The 18 horse power Toledo, with three cylinders 4 1-4 by 5 1-4 inches, showed approximately 80 square feet in a flanged radiator carried, like the C. G. V., in front of the front axle. Taking the motor as good for 20 horse power, we have 4 square feet per horse power as before. This car has 3 speeds and a maximum of 35 miles. The 2-cylinder 12 horse power Toledo had a similar radiator of 64 square feet and an additional area of about 4 square feet in tubes with which the tank was pierced, giving roughly 5 square feet per horse power. Maximum speed, 30 miles.

It was impossible to measure the surface of the 24 horse power Toledo car's radiator, which was described in the issue of January 24, and the only representative of the company possessed of the information was absent when the writer inquired. The radiator of the 24 horse power Columbia car, alluded to in the same issue, was stated to have 108 square feet, or, assuming a reasonable margin between the rated and maximum power, of rather less than 4 square feet per horse power. The maximum speed should be between 40 and 45 miles.

WITH PUMPS AND WITHOUT.

All of the above machines had circulating pumps, usually of the centrifugal

variety. The 24 horse power racing Renault, of course, had none. Its tubes were banked along the two sides of the bonnet, and were in multiple instead of series. The fins were but 1 1-2 inches square, and the total area was about 110 square feet, or 4.6 per horse power. The machine, which has three forward speeds, is very light, and, like all Renault cars, very efficient. Probably 50 miles per hour would be a very low speed to credit it with. This car had 80 tubes of an average length of about 13 inches. The Ward Leonard copy of it had, according to the maker, about 96 feet; and the fins of the latter were spaced 4 to the inch against about 3 1-2 in the French car. This would make its surface 140 square feet, or 5.8 to the horse power. Although this machine, being fitted up as a touring car, would seldom do better than 40 miles an hour and obviously needs greater cooling surface, the writer is inclined to think the total length of tube used in it was somewhat overstated.

The Locomobile 16 horse power car, with four cylinders 4 by 5 inches, had the usual bank of tubes forward of the front axle. Its area was about 80 square feet, or 5 per horse power. The same radiator seemed to be used with all styles of cars having this motor.

The Winton 20 horse power car, with two cylinders 5 1-4 by 6 inches, had 106 square feet of cooling surface, or about 5 per horse power. The radiator in this car, being just forward of the tanks, is not particularly well located for the free passage of air. The machine has, of course, two forward speeds, the higher being probably about 35 miles when geared for touring.

AUTOCAR 10 HORSE POWER.

The 10 horse power Autocar has tinned flanges 2 inches square, and a total area between 50 and 60 square feet. Its maximum speed is 25 miles. The Long Distance 12 horse power motor-front car, with two cylinders 5 by 6 inches, was stated by the exhibitor to have 60 square feet. Its maximum speed is given as 35 miles. Like the Autocar, it has three forward speeds.

The Apperson 20-horse power car, with two cylinders 5 3-4 by 6 1-2 inches, had 120 square feet, or 6 per horse power. It has three forward speeds, the maximum being about 38 miles. The same relative surface is found in the 6 1-2-horse power Cadillac runabout with single cylinder 5 by 5 inches. As the latter car has a slow speed, and its centrifugal circulating pump runs no faster than the motor itself, it seems highly probable that a surface per horse power which is superabundant in the Apperson car may be distinctly inadequate in the smaller machine. Both radiators were of the ordinary flanged type.

Only two of the cars examined, the Stearns and the Searchmont, had greater relative cooling surface than those just mentioned. That of the former, a 2 cylinder 25 horse power car, was on the new Panhard style, but with 5-16 inch tubes and fins 1 3-8 inches wide. The total area was between 190 and 200 square feet, or nearly 8 square feet per horse power. The location of the radiator, just in front of the tanks, may account for part of this liberality. The car has three speeds, maximum 40 miles. The Searchmont car, rated 10 horse power, with two cylinders 4 1-2 by 5 inches, had 90 square feet, or 9 per horse power in its flanged radiator. It has four speeds, maximum 35 miles.

MACHINES WITH FANS.

Three machines with fans were examined—the Peerless, Automotor and Mercedes Simplex. The radiator belonging to the first of these was described in these pages October 11 last. Taking fins and tubes together, it has 47 square feet, or practically 3 per horse power. The engine has two cylinders 4 1-2 by 5 1-2 inches, and runs up to 900 or 1,000 turns, giving a maximum touring speed of 35 miles. The fan, 11 or 12 inches in diameter, is a recent addition.

The Automotor 18-horse power car, with four cylinders 3 3-4 by 3 7-8 inches, has a small fan behind its radiator, which was illustrated January 31. Its area was stated by the exhibitor to be in the neighborhood of 40 square feet, or about 2 1-4 per horse power. Neither this nor the Peerless machine has the tightly closed bonnet characterizing the Mercedes Simplex.

BUFFALO ELECTRIC CARRIAGE CO. AND THE BRUSH PATENTS.

Special Correspondence.

WASHINGTON, D. C., Feb. 14.—The case of the Electric Storage Battery Co. against the Buffalo Electric Carriage Co. has finally reached the United States Supreme Court, the latter company having just filed a petition for a writ of certiorari to the United States Circuit Coudt of Appeals for the second circuit. It will be remembered that the Electric Storage Battery Co. on April 24, 1902, filed a bill of complaint in the U. S. Circuit Court for the western district of New York, charging the Buffalo Electric Carriage Co. with infringement of letters patent No. 337,299, issued March 2, 1886, to Charles F. Brush for improvements in secondary batteries. In response to a rule issued by the court, the Buffalo concern, on May 6, 1902, filed affidavits, showing that the secondary batteries used by it in the equipment of its vehicles had been manufactured by the Porter Storage Battery Co., an Illinois corporation, and that they had been made exactly in accordance with the description and claims of certain expired patents issued to Brush, to whom the said Brush patent sued on was issued. On June 4, 1902, the court held that the Buffalo Company was subject to an injunction under said Brush patent No. 337,299, it being the opinion of the court that the fact that they were using the inventions of the expired Brush patents afforded no justification. Accordingly, on June 16, 1902, the court enjoined the Buffalo Company from using the secondary or storage batteries, and on appeal the decision was affirmed.

Some time in July, 1902, the Electric Storage Battery Co. filed its bill of complaint against the Porter Battery Co., charging infringement of patent No. 337,299, moving for an injunction, which Judge Kohlsaat refused to grant.

The Buffalo Company asserts that the inventions described and claimed in the expired Brush patents are specific, and the invention of the later Brush patent sued on is generic, as construed by the courts; that by preventing the Buffalo Company from using the inventions of the expired Brush patents, through or under the later Brush patent sued on, the monopoly of the expired Brush patent is in effect and, in fact, prolonged, thus causing injustice and wrong to the Buffalo Company.

The court is therefore asked to grant a writ of certiorari, requiring the cause to be certified to it by the U. S. Circuit Court of Appeals for the Second Circuit, for its review and determination. Counsel for the Electric Storage Battery Co. opposed the petition, and the arguments in the case are now being considered by the court.

Boston Dealer's Show.

The show of the Boston Automobile Dealers' Association will be held in Symphony Hall during the week of March 16-23, opening at 8 P. M. on the first day, and being open from 2 P. M. until 10.30 P. M. on all other days. The main hall will be reserved for the motor cars, and the motor cycles and bicycles will be shown in the basement.

Practically all the spaces are already taken, the list including the Toledo, Cadillac, Century, American, St. Louis, Buffalo, Northern, De Dion, Bouton, Peerless, Knox, Orient, Crest, Pierce, Winton, U. S. Long Distance, Pope-Robinson, Haynes-Apperson, Upton, Olds, Autocar, Packard, Stevens-Duryea, Stanley, Waverly and Columbia. Information may be obtained of W. E. Eldridge, chairman, Show Committee, 223 Columbus avenue, Boston.

The People's Auto-Transit Co., organized under the laws of Arizona by citizens of Lorain, Huron and Erie counties, in Ohio, will establish lines for public motor car service in those parts of Ohio where electric railways are infrequently found. The company starts with a capital of $25,000.

Suburban Life for the City Man Made Easy by the Automobile.

BY A COMMUTER.

Problems of transit are everywhere in New York city at the present time—overhead, underground and on the surface—with intolerable conditions overlong endured on the Brooklyn Bridge, and some point or other of inconvenience at nearly all of the ferries, to add to the complexity of the general situation. Some of the component problems will be solved in part by ways and means under consideration or already in process; but it is safe to say that the greater part of them will remain in some form or other for a long time to come. The automobile, like its owner, must make the best of that which cannot be helped, taking care, however to neglect no single opportunity for betterment, no matter when or where it presents itself.

If one can imagine all these problems for the moment solved, what a splendid and surpassing heritage would the automobilists of the Metropolitan District receive! The topography and general situation of the greater city, while exposing many points of cleavage between Manhattan proper and the suburban districts round about, has at the same time something which is more than mere picturesque variety. Looking across either narrow river into the city, the sight is of a character to make one's memories of the environs of London and Paris seem rather tame. Hardly out of New York to the North, the scenery of the Hudson is a constant charm even to hardened commuters, to say nothing of the Long Island Sound shore. An unrivalled panorama of marine activity presents itself from the Staten Island or New Jersey water-front, compared to which what is the diminutive Seine, at Paris, or even the Thames, at London, in its upper course? As a matter of fact, no large city in the world has so many striking water-and-highland features, or carries the boldness of natural views so close to its doors.

NERVE WEARING TRANSIT.

The practical difficulty of enjoying a country estate twenty or thirty miles from town is not the expensiveness of it, or even the time spent in going and coming, so much as the strain of rushing from one car or ferryboat to another. It is the one unchanging program, morning and evening the year through, forever in contact with the rushing, scrambling crowd. Yet most men who work during the day must rest after nightfall if they do not expect to break down and be run over by the modern juggernaut. Rest does not demand utter cessation from activity, but it does call for change and variety, and above all for some sort of personal freedom in coming and going. It wants to be independent of the crowd, or with the crowd, at will, and if left to itself with the choice offered, it will now and then take a new route between home and office.

One may imagine that Charles R. Flint has found something near to an ideal solution of this matter in his swift *Arrow* on the nearby waters and his swift automobile for carriage between dock and office in summer and about town the year around. Mayor Low, of New York, had a somewhat similar automobile-and-boat arrangement, only not so pretentious, as a means of reaching his summer home during the short season of hot weather in 1902. Comparatively few can follow in the footsteps of either of these men, but with city and suburban streets and roads all they should be, the automobile could be used from end to end of the journey. This would give that independence from the crowd to which reference has already been made, and one through trip could be made from house to office or vice versa, instead of breaking it up into street car, ferry and train stretches, one matched onto the other by main strength and much wear and tear on nervous force.

A CHOICE OF TRANSPORTATION.

In an emergency, the conventional means of transportation could be taken with some degree of interest if not always with pleasure. One could either find separate storage for his vehicle in the city and drive it himself, or be met by his own chauffeur as preferred or as circumstances might require. The maintenance of such a service as this would be a mere bagatelle to thousands of New York business men, and the cost would not ordinarily average more than the total expense of present methods. It would certainly average less than where a seat in the "club train" is taken for each trip and where one is met by separate conveyance on the home end. Instructions could be sent to the driver by telephone from either house or office, and waits between trains—as for instance where one is detained in town into the evening—would be largely eliminated.

But it is not mere accessibility to his business in the city that the suburban resident is concerned with. A number of things enter into the problem of moving back into the country for more "fruit trees, milk and shade," if not always for cheaper rent and easier conditions of private ownership. One is the social side and another the protection of life, health and property. The latter is more or less adequately secured—except on the Jersey side—by the extension of the metropolitan police, fire and health-board service over the greater city, subject to one central authority.

PROMOTES SOCIAL INTERCOURSE.

Beyond this, however, the suburban public must have a chance to move around and get acquainted with itself, as the conventional means of transit do not comfortably allow. Each clique, so to speak—and cliques there will always be in suburban communities—must have an opportunity to acquire character and a sort of social independence of its own. When this is widely possible, the numerous outlying villages will be more than sleeping places for the business men of the metropolis. Calling them a part of the greater city does not make them any less suburban—or any less provincial. Either the city must assimilate them in fact as in name, or else a separate social center be provided for. It is felt more and more that something must be done to make the nearby communities more interesting in themselves—for the sake of the commuter's family, if not for his own sake.

These things may, in time, suggest a judicious extension of city amusements to the outlying districts of largest population and easier access, although the seasoned New Yorker may find it difficult to enjoy this kind of thing where he cannot feel beneath the glare and show the throb of the great heart of city life. Children must be brought up, women must have the chance to meet and talk over their special interests, and men have something more than a porch to sit on, a tree to rest under and a rural aspect to ease the eye and sooth the nerves. The element of creature comfort must not be overlooked. Few men who do business in New York city feel that affection for their hired homes that is inspired by the lusty life and teeming activities of the great city. But this is a thing to be cultivated as a healthy habit of the mind. When our suburban villages within a radius of twenty to thirty miles become more compact and more social, better defined in the view of the public as well as in the view of those who live in them, the charm of the city itself will be increased, and the pleasure of going to and coming from it materially enhanced.

The Automobile Club de Nice will hold a brake contest on March 28, the prizes being given by Messrs. Gallice and Marconnet. There will be trials for the ordinary brakes and also for a special emergency brake working directly on the rear wheels and not on the motor or the differential. The ordinary brakes will be tested with the cars in forward and also in backward motion, for stopping power; and also for holding power in a descent of 8 kilometers at a speed of 9 miles.

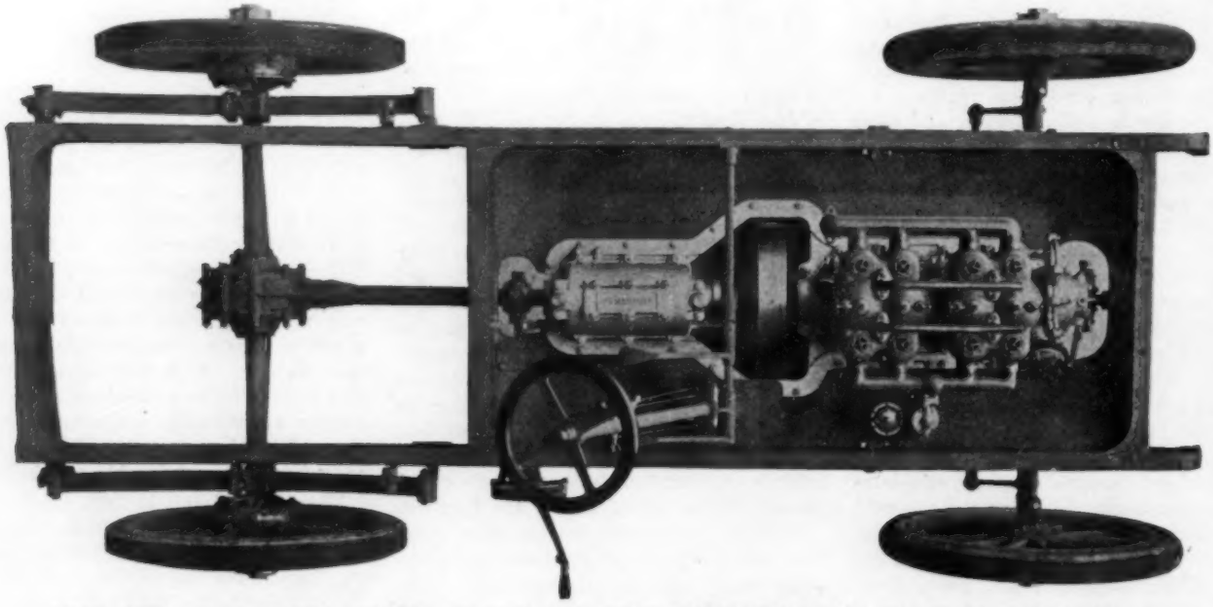
An automobile postal service, with electric vehicles, will be inaugurated in Milan, Italy, for the collection and distribution of local letters.

DECAUVILLE NEW DESIGN INCLUDES MOTOR PROTECTION FROM DUST.

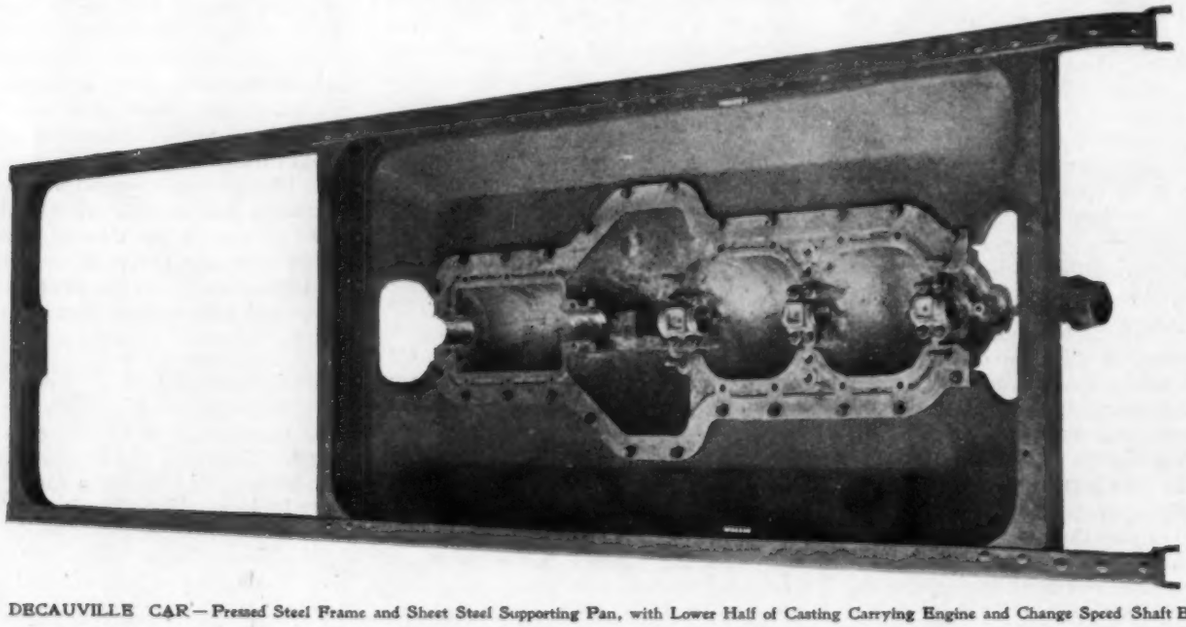
A number of construction features of interest are embodied in the 1903 model 16-horse power Decauville car, and are exhibited in the accompanying engravings. The aluminum casting which forms in one piece the base of the crank case and of the gear case is retained from last year, but instead of being supported by tubes brazed to the tubular main frame it is riveted into a heavy sheet steel pan, which itself is riveted to the main frame, now made of pressed steel. This pan serves at once the functions of a support and a dust-protector for the motor.

Other features worthy of note are the design of the frame, with the cross members widened at the ends to give the necessary stiffness without reinforcement; the formation of the side members to avoid the use of "pump handles" at the front ends; the use of mechanically-operated inlet valves identical with the exhaust valves, so that one spare valve is sufficient to carry, and the enclosing of the universal joint back of the gear box, so that it is packed in grease. The rear wheels turn on the ends of the axle sleeves, and the internal divided shaft has no duty except to rotate the wheels.

The steering knuckles are reversed from the usual arrangement, the yokes being forged on the knuckles instead of on the ends of the fixed portion of the axle. The extreme simplicity of the operating mechanism about the gear case is noticeable. There are three forward speeds, the highest being direct. Contact spark ignition is used, and the wires leading to the igniters, instead of being connected to them, lead to a sub-base, from which connection is had with the igniters by four springs, the purpose being to save the wires, as the igniters are shifted to vary the timing, from danger of breakage.



TOP VIEW OF COMPLETE CHASSIS OF THE 1903 MODEL DECAUVILLE CAR—Note Dust Pan and Motor Support.



NEW DECAUVILLE CAR—Pressed Steel Frame and Sheet Steel Supporting Pan, with Lower Half of Casting Carrying Engine and Change Speed Shaft Bearings.

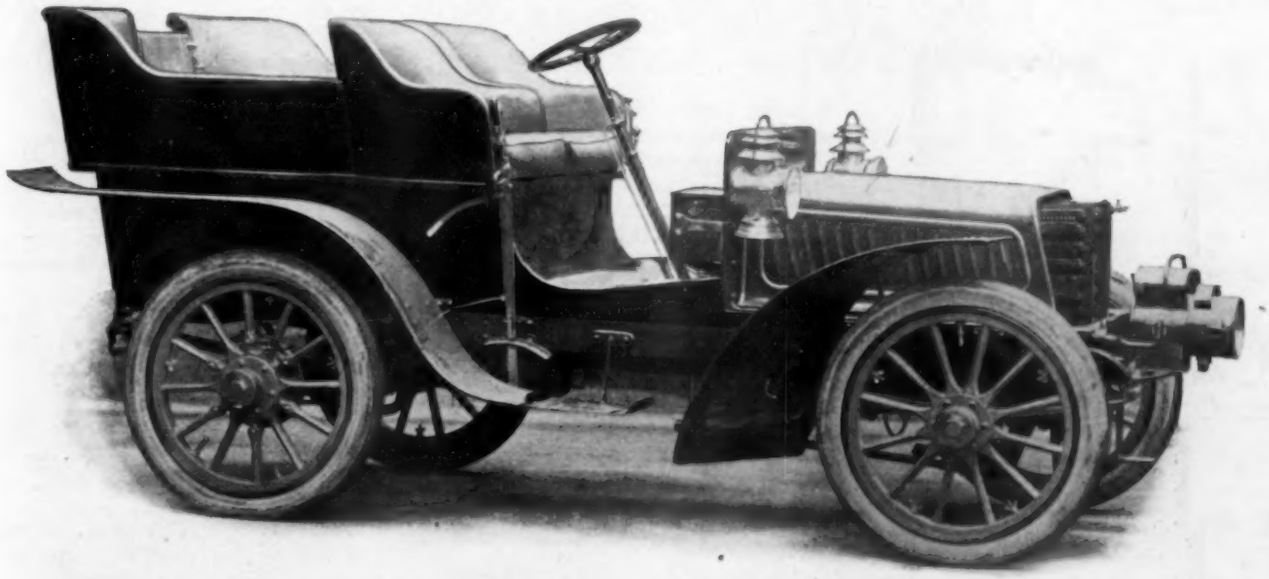
An example that may lead to more international marriages in the automobile world has been set by Mr. Willy Tischbein, president of the German Continental Tire Company, of Hanover, who has married Mlle. Marthe Beplate.

New racing rules are now under consideration by the Racing Committee of the American Automobile Association.

AMERICAN PROTOTYPE OF THE KREBS CARBURETER.

It will come as a surprise to many, perhaps, that the motor vehicle can look to the motor bicycle for improvements in details, before the Academy of Sciences in Paris last November. Added attention was drawn to the device by its exhibition at the Paris show, as it was designed and constructed upon the principle that with decreasing speed of piston travel and the consequent decreased suction on the gasoline, there must be means to take in air in certain varying proportions in the mixture, and the proportions must be regulated automatically. Because these conditions are met by the Krebs, it was pointed out that its principle is likely to come into extensive, if not general, use.

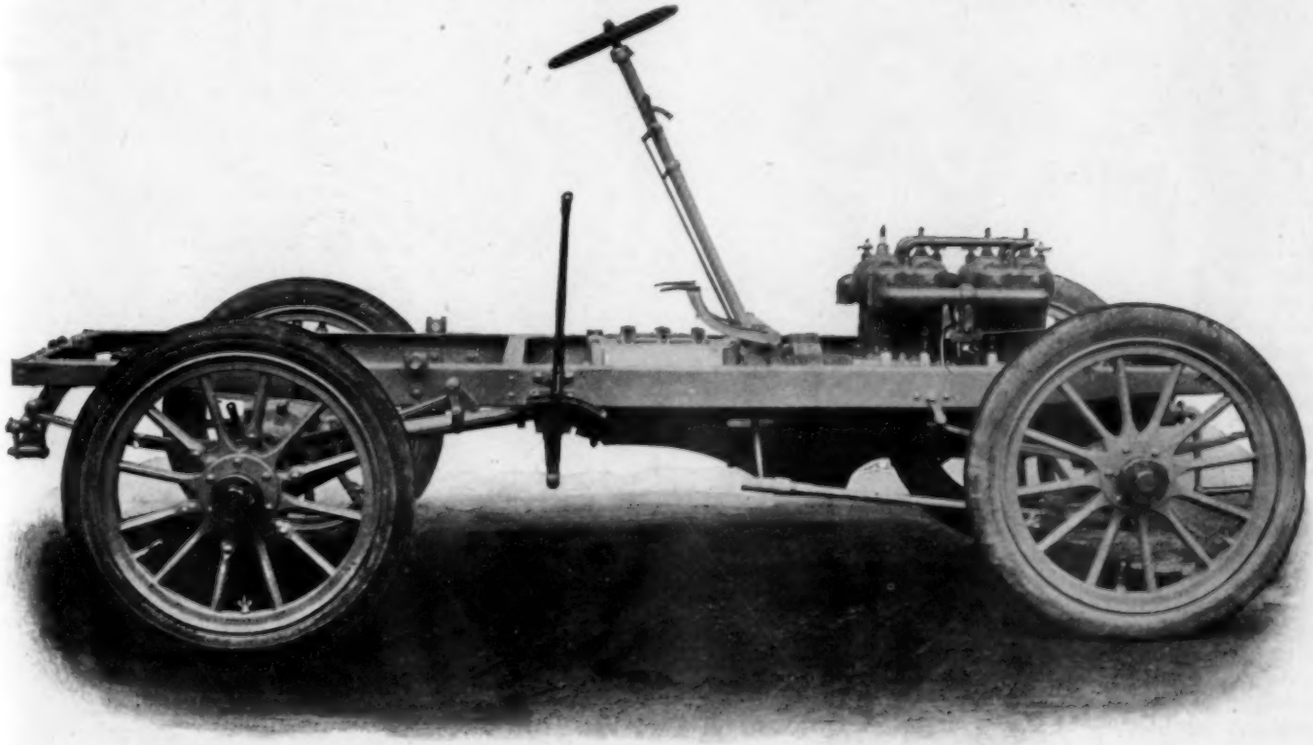
Because we have no Academy of Sciences in this country and because, also, it was used on the motor bicycle instead of being shown on a motor vehicle, little attention has been drawn to the Hedstrom carbureter, which is now in its third year of use on the Indian motor bicycle made by the Hendee Mfg. Co., of Springfield, Mass.



1903 MODEL DECAUVILLE 16-HORSEPOWER 4-CYLINDER GASOLINE TONNEAU TOURING CAR.

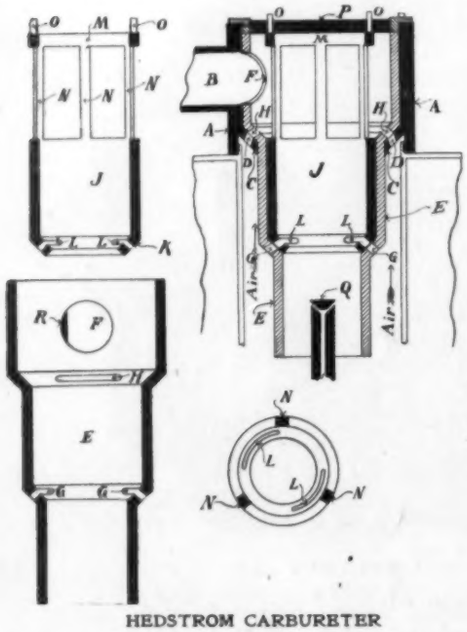
ye that this can be the case is demonstrated by the fact that the main principle of the Krebs carbureter, which has created a stir in automobile circles of late, was anticipated in the United States nearly three years ago by Mr. Hedstrom, of Springfield, Mass. The Krebs carbureter was first brought to attention in a paper read

A general idea of the Hedstrom carbureter can be understood from the accompanying illustration and description. In justice to the designer, it should be stated that the illustration is merely diagrammatic and is not in proportion or exact in details.



CHASSIS NEW DECAUVILLE CAR—Inlet Valve Side of Motor, Showing Throttle on Main Supply Pipe also Rear Spring Suspension.

The dome *A* has an outlet *B* to the engine, and a concentric diagonal base ring *C*, with two elongated slots or ports *DD*. Resting on this ring is a tube *E*, having three diameters. The upper diameter has a port *F*, matching the outlet *B*. The steps from one diameter to another are diagonal and



HEDSTROM CARBURETER

each has two elongated ports *GG* and *HH*. The ports *GG* are 90 degrees relative to *HH*. Resting on the diagonal step having ports *GG* is a tube *J*, with a lower lip *K*, also with two ports *LL*. Connecting this tube *J* and a ring *M* are three bars *NNN*, and in this ring are two pins *OO*, which project through the dome cap *P*. This cap is rotable and operated by suitable means. The gasoline is sprayed at *Q*.

For running under slow piston speed conditions the port *F* is only partially opened relative to *B*, as shown by the shading *R*. Starting under these conditions, the two pins *OO* are moved to a ratio between ports *LL* and *GG* that will give the proper mixture of air with the gasoline entering through *Q*. Under these conditions the ports *DD* are closed by the table of the diagonal step having the ports *HH*. When the throttle port *F* by turning cap *P*, to which *E* is connected, ports *HH* are relatively brought into position with ports *DD*, permitting more air to enter the dome with the increased quantity of gasoline drawn by the piston suction past the spraying cone *Q*. Contrariwise, turning cap *P* moves the tube *E* to throttle the supply of mixture to *B* and at the same time reduces in proportion the supply of air through ports *HH* and *DD*. A stop is provided which prevents an entire closing of the passage from the dome to the pipe *B*, leading to the engine, this smallest outlet being shown at *R*.

Once the correct mixture has been found by a relative adjustment of the ports *LL* and *GG*, there is ordinarily no further manipulation of the pins *OO*. To increase the speed of the piston, the factor of the point of sparking being neglected, the throttle *F* is opened by turning *E*, when there is an automatic increased supply of air through the ports *HH* and *DD* proportional to the greater admission of gasoline through *Q*. The inner tube *J* moves with *E* to keep the original setting of the first adjustment of air and gasoline.

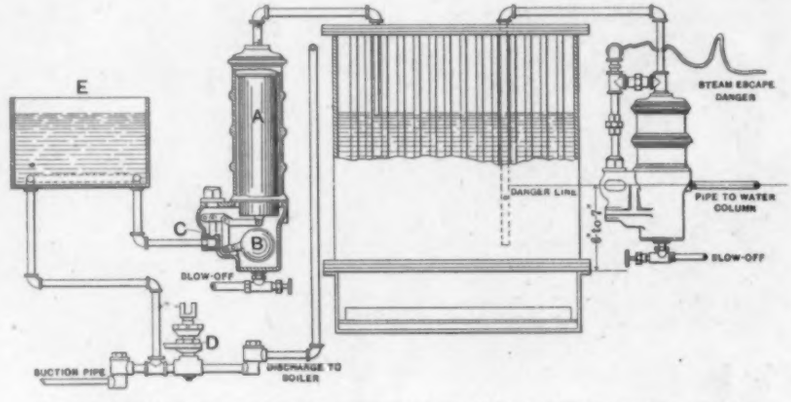
The Hedstrom carbureter will be made in larger sizes for automobiles, using the same principle that has been found successful in the carbureter used on the Indian bicycle.

MOBILE FEED WATER REGULATOR AND LOW WATER ALARM.

The accompanying illustration shows the new water regulator used in the Mobile steam vehicles and referred to in the New York Show reports. Although its operation is that of a float, there is no float, in the sense of a hollow body filled with air, employed. Instead, the "float" is a copper cylinder filled with water, whose weight is counterbalanced by a much smaller ball, presumably of lead, so that when surrounded by air or steam the "float" goes down, but when immersed in water it rises, on account of the different displacement of the float and the weighted ball in the water.

As the drawing shows, the regulator is connected to the interior of the boiler by a pipe, whose mouth is located at the desired water line in the boiler. The float *A*, counterbalanced by the ball *B*, acts on a valve *C* leading into a pipe connected to the boiler feed pipe between the first check valve and the pump *D*. This pump, which is worked from the engine in the usual way, forces the water through a heater and then to the boiler. The action of the device is as follows: Assuming that we start with the water covering the mouth of the tube leading to the regulator, the regulator itself, as will presently be explained, is filled with water, causing the float to rise and open the valve *C*. Consequently the boiler pressure is communicated, not only to the regulator, but also through the pipe to the pump and the first check valve. This pressure holds the check valve shut, and the pump, which, of course, keeps on working, simply pumps water from the regulator and back to the boiler. When the water level in the boiler falls below the mouth of the pipe, the water in the regulator is quickly pumped out, and the steam takes its place. The "float" then sinks, closing the valve, and atmospheric pressure in the pipe beyond is established by condensation of the steam in a coil in the small reservoir *E*. This permits the check valve to open and the water to be pumped from the feed tank. When the water in the boiler again rises, the condensation of the steam in the regulator permits water from the boiler to enter it again and the previous process is repeated.

The low-water alarm, shown on the other side of the boiler, works on the same principle. It permits a jet of steam to escape near the front of the foot-board, where the operator cannot fail to see it.



NEW MOBILE FEED WATER REGULATOR AND LOW WATER ALARM.

Automobiles for British India.

Special Correspondence.

WASHINGTON, D. C. Feb. 21.—A suggestion has reached Washington to the effect that an American department store, composed of ten or twelve non-competing lines, should be opened in Bombay, India. It is stated that among the various non-competing lines that would probably prove successful are automobiles, bicycles and motor cycles. Such a concern should be a stock company, with the stock held equally by the several houses interested and paid for in the goods represented, less a small percentage in cash, the latter to be used to defray the expenses of establishing the business. The clerical force and salesmen could be natives of the country, but other details should be purely on the American plan.

American manufacturers should give more attention to India. On that peninsula, which is about one-half the size of the United States, reside 300,000,000, or about one-fifth of all the inhabitants of the earth. Bombay is the national gateway to India and offers better facilities for exploiting American manufacturers than any other city in the Orient.

New Cars at the Chicago Automobile Show.

Moderating Weather Causes Increased Attendance During Last Days of the Big Industrial Exhibition—Tradesmen Thoroughly Fagged and Spite of Professed Enormous Advance Sales of Cars Manufacturers Murmur Against More Than One National Show In the Future.

Staff Correspondence.

CHICAGO, Feb. 21.—Weary with daily and nightly attendance at the second annual automobile show in the Coliseum, and hoarse from expatiating upon the features of their respective vehicles, tradesmen were not sorry when the close of the show came to-night. They generally have pronounced it a good show and are satisfied with the amount of business done, many having now sold their output as far ahead at least as the middle of the summer and a number having closed sales for the entire year's production. The visiting tradesmen are anxious now only to get back to factory and salesroom and settle down to the serious work of production and delivery.

The severe weather moderated on Tuesday, rising from 10 degrees below zero that morning to 20 above on Wednesday, the northwest gale also moderating and shifting to the south. The effect was almost immediately noticeable in an increased attendance, which began about 10.30 o'clock in the forenoons and steadily increased in the afternoons and evenings, the closing evening bringing out the greatest number. According to Manager Miles, the attendance has been about 50 per cent. larger for the week than it was at the Coliseum show last year. Moreover, this attendance has been of a class of persons most pleasing to the exhibitors—persons who have the money and who were in the market for automobiles. They came from all points of the compass and many were from great distances. Particularly noticeable was the fact that the furs worn were those of the westerner, the ranchman and physician, instead of the automobilist, for which they may be exchanged, however, in a year or two.

GENERAL VIEW OF THE CHICAGO AUTOMOBILE SHOW IN THE COLISEUM LOOKING SOUTHWEST.

It has been an industrial exhibition rather than a social affair, the earnestness of the visitors indicating that seed has been sown from which the fruits will be reaped for years to come. One dozen has not been an unusual number for the direct sales of the week by different makers, while the sales of a number of makers have been limited only by the fact that the large

numbers of orders taken at the New York show and through the regular sources will keep the factories busy full time until summer.

Liveliness was added to the show, and the interest of the spectators greatly increased by the many motors kept in operation, no rules against the use of gasoline in the building having been made. Neither was there any prohibition of smoking; and the proximity of free gasoline to flames, when refilling tanks, was occasionally a bit startling. Fortunately there were no more serious explosions than a burst tire, an infrequent explosion in the muffler and the ignition of an accumulation of acetylene gas in a lamp.

The Chicago daily newspapers, contrary to their accustomed policy of ignoring or reviling the automobile, gave the show a good send-off on the Sunday following the opening, and then subsided again into either no mention of the affair or only perfunctory mention of the strictly news features, such as the smoker on Thursday night and the good roads convention on the following evening.

In retrospect, the show partook of a national, a western and a local aspect. Manufacturers from as far east as France, as far north as Minneapolis and as far south and west as St. Louis, were represented; Ohio made the largest showing with thirty different exhibitors; Illinois and New York tied for second place with twenty-six each; Indiana was fourth with fifteen exhibitors; Michigan and Massachusetts ran a tie for fifth place with nine each, and Pennsylvania and Wisconsin were represented respectively by eight and seven. The eastern makers did not all display direct, however, particularly the French manufacturers, and it was in the exhibition of foreign and eastern cars and middle western vehicles by Chicago and western sales agents that the show took on the aspect of the local rather than the national exhibition.

Despite the unquestioned success of the show, with its good attendance, many sales, excellence of arrangement and pleasant reunion of tradesmen with an unprecedented feeling of good fellowship and freedom from disparagement of competing productions, the closing days developed an apparently widespread if not a general sentiment against the holding of more than one national show in the future. The manufacturers would make the New York exhibition the national affair and the Chicago show a gigantic local display, at which their vehicles or parts and sundries will be shown by Chicago and western branches or sales agents. As good reasons for this they cite the loss of invaluable time by office and factory staffs in the busiest season, the expense of shipping displays 1,000 miles, the postponement of purchases by the public preceding the shows, and the fact that most of the agents and a very large number of probable buyers make a point of attending the New York show, even from so far west as the Pacific Coast. It is therefore being predicted by some that this will be the last national event of its kind in the western metropolis.

Some belated applications for space were made and exhibits installed in the Coliseum as late as Tuesday and Wednesday, several makers of parts or sundries gladly taking space in subdivided booths of earlier exhibitors. All available main floor space was therefore well filled and the show took on an appearance of pleasing completeness. Foreseeing a probable great increase in demand for space next year, even should the show be designated as a local or western affair, tentative plans have been laid for the extension of the balconies out over the main floor toward the center to be used for the exhibits of sundries.

The liveliest place in Chicago throughout the week was the Coliseum street front with a dozen demonstration cars of all types and styles drawn up in the snow banks before the building. Every cable train that passed the doors bore the sign "The Auto. Show, Coliseum, February 14-21," while in hundreds of windows of leading business places throughout the downtown section of the city were displayed for a week or two ahead the attractive posters issued by the management.

The social functions or entertainments of the week consisted of the smoker tendered by the show management on Thursday night to the trade people in the second floor of the annex, following the close of the exhibition hall for the night, an informal little supper tendered by Manager Miles to two score friends at the Lexington on Wednesday evening, and the entertainment of the members of the city council at the show by a committee of the Chicago Automobile Club.

New Vehicles Exhibited.

FANNING AIR-COOLED TONNEAU CAR.

What is probably the only air-cooled tonneau car in the country is shown by the Fanning Mfg. Co., of Chicago, which also has on display one of its neat little electric runabouts. The gasoline car has a twin cylinder vertical motor of 9 horse power located transversely under a bonnet in front, whose novelty consists in the fact that it is air cooled. The cylinders, cylinder heads and valve cases are covered by sheets of aluminum soldered edgewise in perpendicular position to the cylinder and all bent toward the front to catch the largest possible amount of air current as the machine moves forward. To further assist the cooling, a 14-inch fan with five blades, about 20 inches in length, is mounted in a cylindrical casing in front of the motor and is driven by spur gears from the engine shaft to throw the air, taken in at the sides of the casing, against the heads of the motor cylinders. The case that encloses this fan also extends rearwardly to enclose the engine, thereby confining the current of air and directing it where wanted. The frame of the car is a combination of steel tubing and wood. The weight complete is 1,650 pounds and wheel steering is used.

JAXSON STEAM AND GASOLINE CARS.

The Jaxson Automobile Co., of Jackson, Mich., shows for the first time two gasoline vehicles, in addition to the new steam carriages that were exhibited at the Detroit show week before last. One of the gasoline vehicles is driven by a Brennan opposed cylinder air-cooled motor disposed transversely at the front under a hood. A planetary speed change gear is located on the crank-shaft just back of the motor flywheel, and the shaft is prolonged to connect through bevel gearing with a differential on the rear axle. The gasoline tank is fastened to the front side of the dash under the hood and above the transmission gearing. The frame is of wood with angle iron support for the motor and is carried on three-quarter elliptic springs.

The other gasoline Jaxson car has a single cylinder, horizontal motor in the rear of the body, planetary transmission on the shaft at the side of the motor and center chain drive to the differential on the rear axle. The valves are mechanically operated and the sparker is operated from a shaft driven by a helical gear.

The company also shows one of its new steam vehicles, equipped with Carter three-cylinder, rotary valve engine.

SANTOS-DUMONT TONNEAU AND VICTORIA.

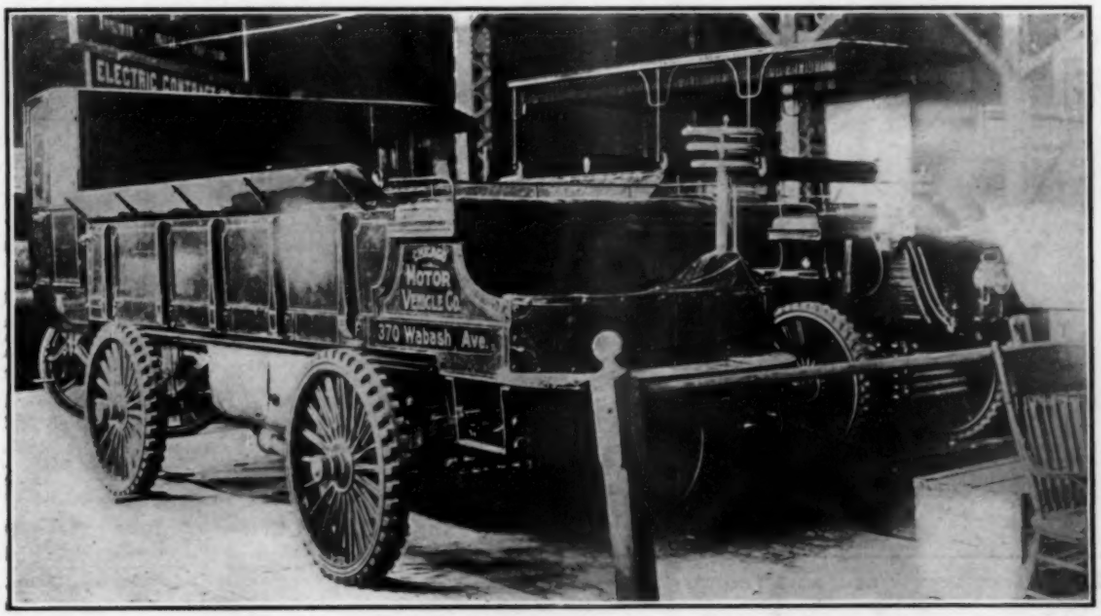
A complete tonneau and the châssis of the Columbus Motor Vehicle Co.'s new car called the Santos-Dumont and one of the company's victorias, are among the many new things of the week here. The tonneau is driven by a 14 horse power two-cylinder opposed motor located in the back, the hood concealing a combined gasoline and water tank of oval form. There are two speeds forward and reverse by spur gears, with one lever control, driving direct on the high speed with no intermediate gears in mesh. Lubrication is from a multiple oiler carried on the crank-case under the front seat.

A long brass tube extends forward from the crank-case, taking in fresh air and sending it at an increased temperature into two carbureters, one for each cylinder. Ignition is by Miller & Freyer wipe spark with dynamo. The frame is of new construction, being made of rolled flanged steel three inches deep with triangular flanges three-quarters of an inch wide.

THE RUSSELL CAR.

A handsomely designed and beautifully finished red and maroon two-passenger gasoline machine is exhibited by C. W.

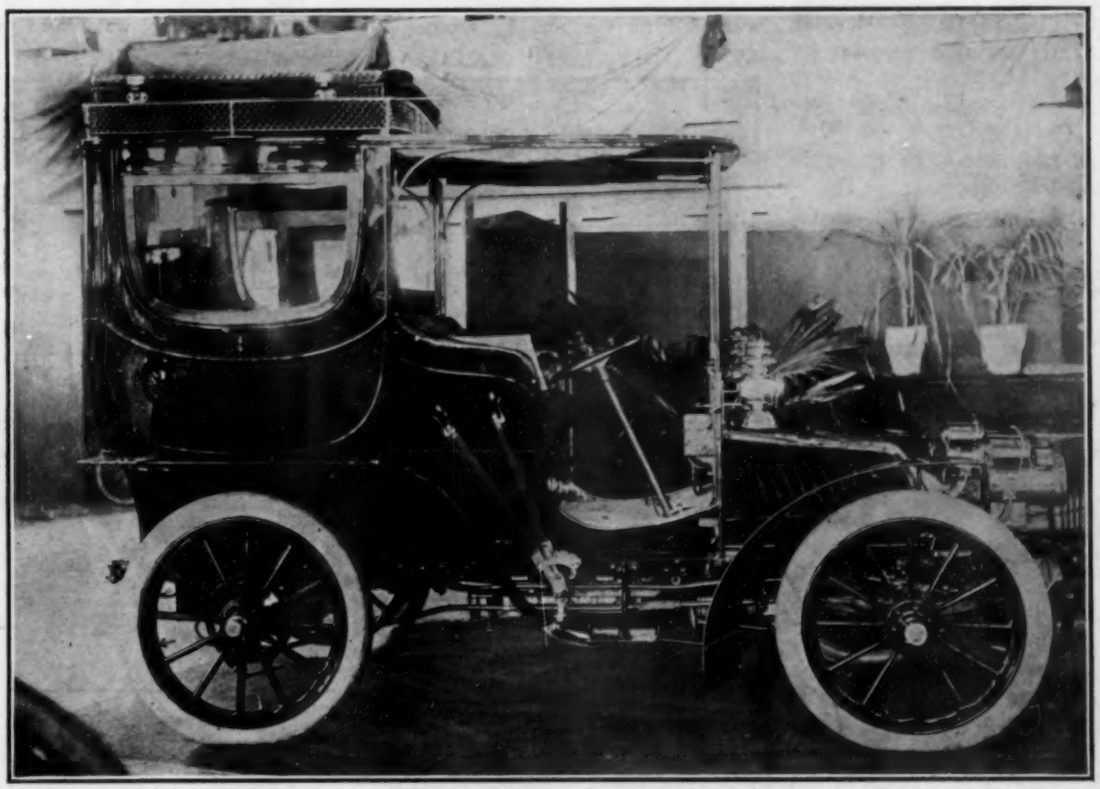
Russell, of Springfield, Ohio. It is of the American type, with single-cylinder 9 horse power horizontal motor under the rear and water and gasoline tanks in the curved dash. It has a three-point suspension tubular frame carried on four elliptical springs. It is equipped with a float-feed carbureter, force-feed multiple oiler, and forced water circulation by pump driven from the time shaft. The crank-case has a short brass pipe 2½ inches in diameter extending forward from the top to relieve the compression in the crank-case. A 24-tube fluted disc radiator is located beneath the front of the body. Steering is by wheel. The wheels are 34 inches in diameter. The brakes are of unusual type, consisting of convex metal rims bolted to the wheel rims at their inner periphery, with brake shoes engaging their inner faces. These shoes are carried by a lever rod journaled on the frame. Transmission is through a three-speed planetary gear.



HEAVY TRUCK EXHIBIT OF THE CHICAGO MOTOR VEHICLE CO., AT THE COLISEUM.

SHELBY GASOLINE CAR.

A feature of the 20 horse power gasoline tonneau of the Shelby Motor Car Co., of Shelby, Ohio, that is seen on only one other machine at the show is a telescoping wheel steering column by which the length of the steering rod can be adjusted to suit the driver and to leave the front of the car open for easy mounting and dismounting. The power plant consists of a twin-cylinder motor disposed horizontally under the footboard, the heads



PACKARD LIMOUSINE STYLE, WITH VERTICAL FOUR-CYLINDER ENGINE.—BODY BY HENRY BINDER.

pointing forward, running 400 to 500 revolutions per minute. Each cylinder has two pistons between which the gas charges are exploded. Transmission is direct on the high speed, with no gears intermediate running, a three-speed planetary system being used. The tanks are under the hood and the radiator is placed horizontally under the front of the body with the tubes of the series in the same plane. Lubrication is by multiple oiler. The car weighs 1,950 pounds and carries six passengers.

TINCHER MOTOR CAR EQUIPPED WITH AIR BRAKES.

The Shelby Company is also showing a 10 horse power car with one seat for two passengers and an auxiliary folding front seat. It is driven by a single-cylinder motor of the same type as the above.

TINCHER 18 HORSEPOWER CAR.

A compressed air equipment for brakes and whistle is the novel feature that, together with the new Reutenber four-cylinder vertical motor, drew groups of interested spectators to the large red tonneau car shown in the annex by T. L. Tincher, of Chicago. This car has a small air pump driven by a cam on the crankshaft, which forces air into a tank. The pump is provided with automatic mechanism that can be adjusted to throw it into action when the pressure in the tank falls below a given pressure, say 60 pounds, and out of action when it reaches 80 pounds per inch. Connected with the air tank by a tube is a small cylinder on the rear axle having two oppositely acting pistons that when pushed outwardly expand friction shoes in brake drums on the rear wheel hubs. Each stop of the car uses about two pounds of pressure, so that if the pressure is up to 80 pounds, ten stops can be made before it falls to 60 and the pump is put into action again.

The compressed air is also used for blowing a whistle and for forcing gasoline from a large tank under the rear of the body into a smaller tank on the dash, which is provided with a gauge glass so that the operator can always see how much gasoline is in the small tank which feeds the carbureter. By connecting a hose direct to the air pump, the tires can be inflated to 150 pounds pressure.

On the dash is a double gauge that shows the air pressure in the tank and the pressure in the water circulatory system whereby if there is any stoppage of the circulation the driver will be promptly made aware of it.

The motor, which has mechanically operated inlet and exhaust valves, can be started from the seat by means of the sparking current even after it has been stopped for some time. Transmission is through sliding gears driving on the high speed direct and giving four forward speeds. Change from one speed to another can be made without passing through the intermediate gears. Ignition is by storage battery, but a small dynamo is carried to be used in charging the battery. The steering post has a tri-quadrant with small levers at its head, one for controlling the throttle, one for regulating the spark, and the transverse one for setting the emergency air brakes. The wheel brakes are supplemented by a brake on the differential operated by a foot pedal. A sight-feed oiler is carried on the dash, and it, as well as the double pressure gauge, gasoline gauge glass, clock, speedometer and tachometer which form part of the equipment, are lighted at night by small incandescent lamps.

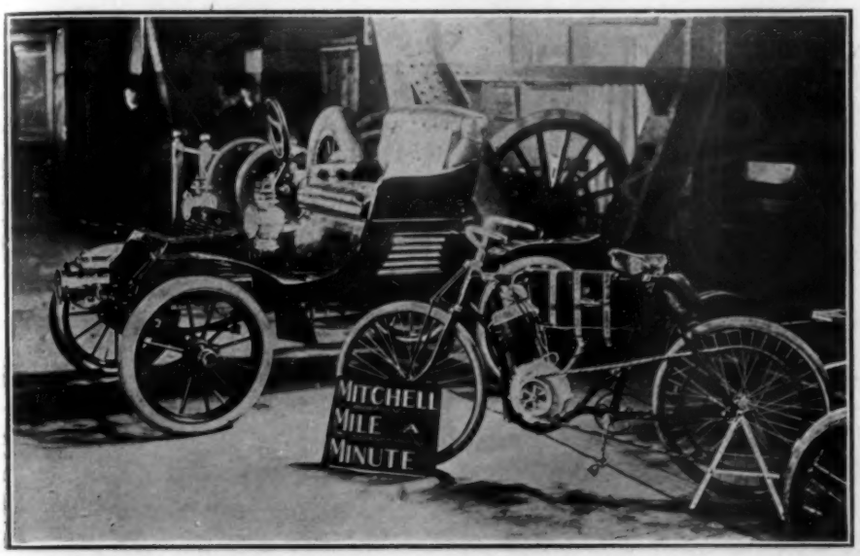
The frame of the car is of double channels faced and filled with white hickory filling, all bolted together. The body, which has detachable tonneau seats, is carried on semi-elliptical springs hung under the axles, making the car low. Drive is by side chains. The hood is of the Mercedes pattern. Complete, the Tincher car weighs about 2,000 pounds.

NEW LOCOMOBILE RUNABOUTS.

One of the latest models of Locomobile steam cars is a runabout having extra long wheel base and a body with a large box or tapered front in which are carried two gasoline tanks and an air pressure tank. The capacity of the two gasoline tanks is fourteen gallons. There are cut-off valves from the air tank to the fuel tanks and from the larger to the smaller gasoline tank. The car is fitted with an automatic steam air pump, water feed pump and an injector for filling the water tank from a roadside trough or brook. One of the gasoline tanks is used as a storage reservoir, from which the smaller tank is refilled by pressure from the air tank. From the small tank it is forced through a su-

CHICAGO MOTO CYCLE CO'S KEROSENE ENGINE CAR.

perheated coil in the burner to the generator. The boiler is 16 inches in diameter, giving large steaming power for the 4 horse power engine. The feed water is heated by passage through a pipe in the boiler before it enters the boiler. The burner is provided with a pilot light.



MOTOR CYCLE AND GASOLINE CAR IN WISCONSIN WHEEL WORKS' EXHIBIT.

The crank-shaft and all reciprocating parts of the engine are encased and are splash lubricated. The frame of the running gear is tubular, the wheels are of the wire suspension type, and the car is fitted with fenders. The finish is automobile red.

Another late model Locomobile is the 10 horse power steam stanhope with box front. This is a very strongly built road carriage with tubular frame, artillery wood wheels, wheel steering, double band brakes on the differential and emergency band brakes on the wheels. Like the runabout, it has automatic pumps and Klinger water glass.

ORIGINAL HAYNES-APPERSON.

An interesting feature of the Haynes-Apperson exhibit was the first gasoline vehicle built by Elwood Haynes, in 1893. Although a curious and ungainly looking carriage, this is remarkable for the number of mechanical features embodied in it that are being used to-day in the latest cars by many makers. It has a vertical motor, though of one cylinder and placed in the back of the body; three point suspension of the tubular frame; trussed rear axle, double side chain drive from a counter-shaft, three speeds forward and three backward, and side leaf body springs. It also originally had wheel steering, which was later changed to side lever.

CLEVELAND TONNEAU AND ROADSTER.

The greater part of the large exhibit of the Cleveland Automobile Co. was delayed in shipment so that several of the cars did not arrive until the middle of the week, but fortunately a model of both the tonneau and the road car and a chassis of the roadster arrived in time for the opening. When the exhibit was all in place it formed one of the largest in the Coliseum, comprising two tonneaus, two surreys, one roadster and one roadster chassis.

The tonneau is driven by a 16 horse power, opposed-cylinder motor placed horizontally at the back. Under the bonnet at the front are carried the tanks, the gasoline tank having a capacity of fifteen gallons. Transmission is through interlocking sliding gears of special construction, with a 14 inch friction cone in the flywheel having an inverse taper bevel, giving three forward speeds and direct drive on the high speed, the intermediate gears running idle. A governor on the engine automatically regulates the sparking, while the throttle is operated by hand. Circulation is forced by gear pump. Valves are mechanically operated. The emergency brake is on the transmission and the foot brake on the drive wheels. A multiple oiler is carried above the engine crank case just under the front seat. The frame of the car is of ash armored with steel. The springs are semi-elliptic and the body is removable by taking out six bolts.

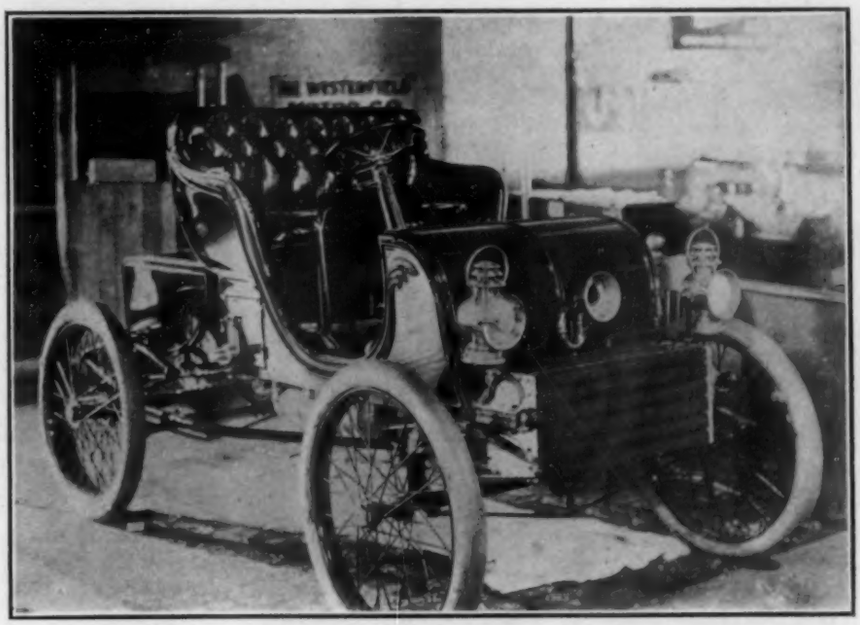
CLEVELAND GASOLINE CAR.

In the booth of the Ralph Temple & Austrian Co. the Central Automobile Co., of Cleveland, exhibited one of its road cars. This has a two-cylinder, opposed horizontal motor at the back, planetary transmission, center chain drive, mechanical valves, tanks under the bonnet in front, oil pump, tilting steering wheel and semi-elliptic springs.

Wayman & Murphy, of Chicago, exhibited in the stand of the Lindsay-Russell Co., of Indianapolis, a 4 1-2 horse power runabout built up of Lindsay running gear and power plant, with Champion transmission gear and fitted with a body of their own design and construction.

STANDARD BALANCED MOTOR CAR.

One of the novelties that drew considerable notice was the chassis shown by the Standard Motor Vehicle Co., of Chicago, the remarkable feature of which was the four-cylinder, mechanically and explosively balanced motor carried longitudinally under the body of the car at the front. This motor has two long parallel cylinders, each having its pistons made integral and connected to the crank-shaft by one piston, the sides of the pistons being slotted to pass the shaft. The pistons in the other cylinders are similarly constructed, but are connected to an opposite



SINGLE SEAT RUSSELL GASOLINE CAR WITH WHEEL STEERING.

crank on the shaft, that is, set at 180 degrees from the other, so that explosion occurs simultaneously at diagonally opposite ends in the two pairs of cylinders, thereby balancing the shocks perfectly. The construction is very simple, there being but one crank-shaft, at the center of the motor, one flywheel and two connecting rods. With a bore and stroke of 5 by 6, and a total weight of 350 pounds, the rated horse power of the engine is 25. Because of the length of the trunk pistons, downward or upward thrust of the connecting rods has little effect on the cylinder surface, wear being minimized. All valves are mechanically operated.

The face of the flywheel is inwardly tapered and carries a friction clutch actuated by a compression coil spring surrounding the hub. The clutch is released by moving it inwardly by means of a yoke and collar, the usual construction being reversed. Change speed is by sliding gears on a counter-shaft under the middle of the frame, drive from the crank-shaft to it being by single chain. The rear wheels are driven by two side chains from the counter-shaft, which also carries the differential.

The frame of the chassis is of angle iron. The radiator is of the Mercedes type. Steering is by tilting hand wheel. A huge cylindrical muffler is disposed transversely under the rear just ahead of the rear axle. An unfinished surrey body, with hood front, was shown by the company to be mounted on the chassis, but the intention is not to push the manufacture and sale of pleasure automobiles so much as commercial vehicles. Willis G. Murray, designer, together with Bert M. Young, formerly of the Friedman company, of the Standard engine, stated that the company is now building 100 trucks of from 3 1-2 to 10 tons capacity, to be used by a new company now organizing to conduct a "terminal trucking" business, moving freight from the railroads to the warehouses and retail stores of large companies in Chicago. It is also the intention to exploit the motor and power system for use on street cars, as the system is well adapted for such use, the motor and all parts being below the floor of the body. The motors can, if desired, be connected with the axles by spur gearing. Options have been secured on a factory in Chicago, another in Milwaukee and one in Akron.

THE WARNER AUTOMOBILE.

Innovations in control mechanism are the prominent characteristics that draw favorable attention to the Warner single-seat car, displayed by the Muncie Wheel & Jobbing Co., of Muncie, Ind. This is a 1,500-pound vehicle driven by a single-cylinder horizontal motor in the rear, with planetary transmission and center chain drive. The regular seat is supplemented, however, by an auxiliary concealed folding front seat having a folding back cushion and a seat arranged to turn up to provide ample space for the reception of a large trunk or hamper at the front.

The car is provided with a Warner pivoted hand steering wheel column which performs the double function of turning the front wheels and of starting the engine. The usual starting mechanism is dispensed with altogether. The steering post is pivoted near its lower end in a slot on the footboard and carries a pinion beneath the floor that meshes, when in steering position, with a transverse rack connected by rod with the steering knuckles and which meshes on its opposite side when in reverse position, with a gear on a shaft carrying a sprocket wheel chain connected to another sprocket on the engine crank-shaft. Means are provided for quickly locking the post in either position. Thus, when in steering position the post is inclined at the usual angle and the hand wheel is just above the driver's knees, but when starting the motor the post is vertical, in the position in which it is placed when the operator leaves his seat. After the engine is started the clutch is thrown in by pressure on a heel button on the footboard.

The spark timing lever is at the center of the steering wheel, on top, and by means of a wedge device this lever is automatically thrown back to late sparking position when the post is raised to vertical position on dismounting from the car. This prevents danger of premature ignition when starting if the operator has left his sparker in advanced position when turning off the current and stopping the engine.

A single handle rotating around the head of the steering post below the wheel gives two forward speeds, while the reverse is by a foot lever. A second pedal sets the brakes and a third governs the throttle.

The hand emergency brake lever, controlling band brakes on the wheels, is so located at the side of the car that when the brakes are off it stands in the way of the operator leaving his place, thereby reminding him to set the brakes, so that inquisitive boys, manipulating the governing mechanism, cannot start the machine should the motor be running.

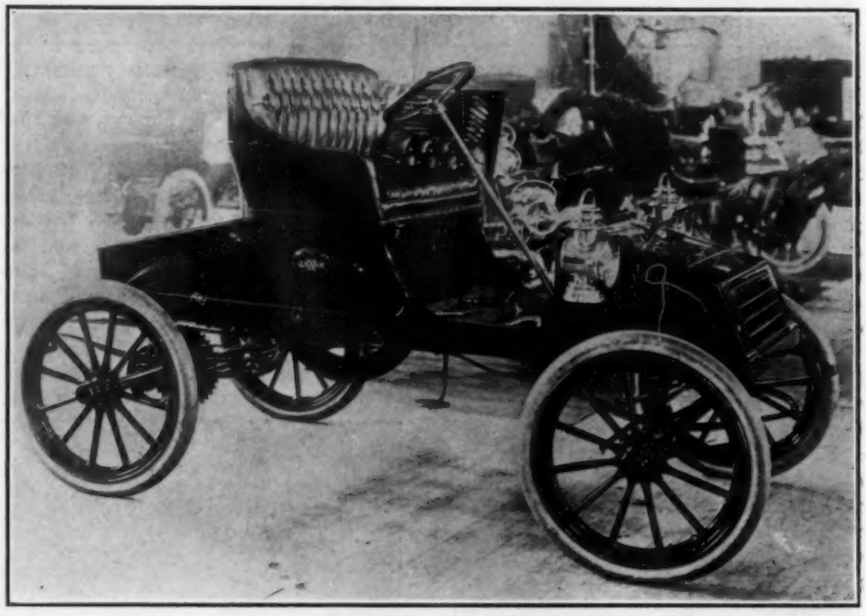
Another feature of the Warner is that by the removal of two bolts at the front and another at the rear, the body can be lifted off and a delivery wagon body substituted. The footboard, with its attached mechanism remains in place.

The Warner spur gear differential is fitted, as are also Bann-Auto wood wheels of special manufacture.

NEW STEARNS TOURING CAR.

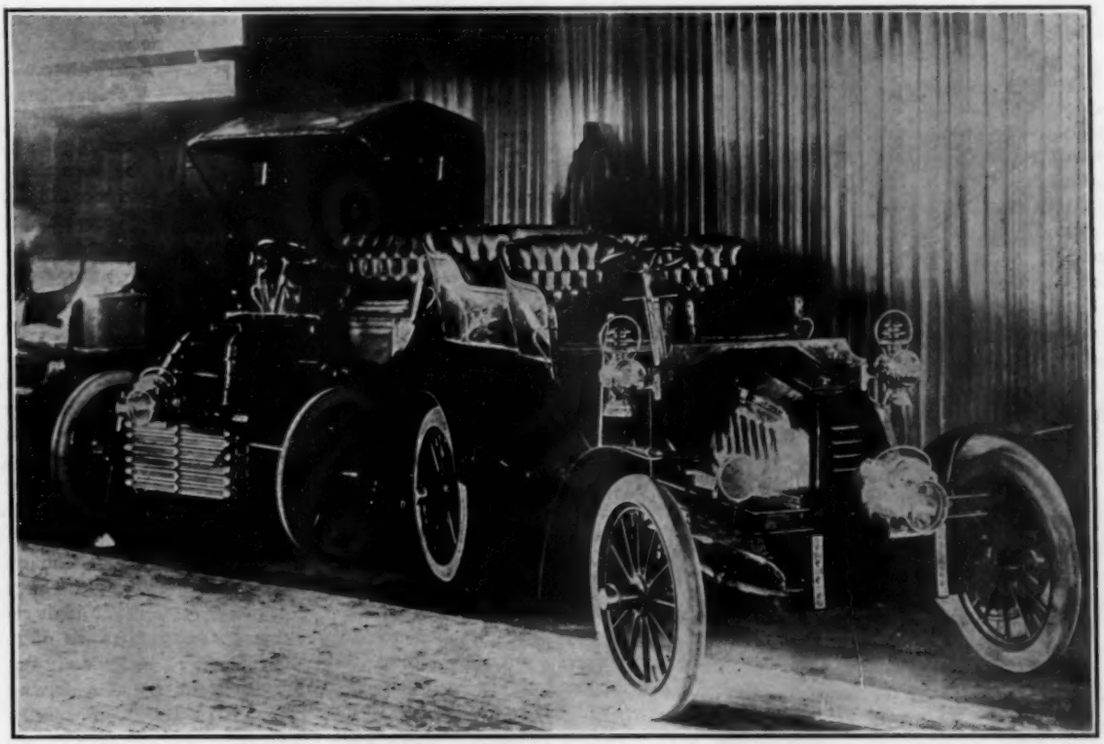
One of the attractive spots throughout the week was the stand of the F. B. Stearns Co., where, in addiion to a 12 horse power single-cylinder "Suburban" car and one of the new 24 horse power double opposed-cylinder touring cars, the company showed a chassis of the latter vehicle in operation. The quiet running of the motor, its freedom from vibration and the silent exhaust elicited much favorable comment. A spectacular little trick of the representative in charge was to stand a lead pencil on end on the crank case while the engine was running to show how slight was the vibration.

More than 200 pounds of aluminum are used in the construction of the crank case and change speed gear case, and the details of the power equipment are carefully worked out. All pipe connections are of bent tubing with flanged joints bent and fitted to place. There are no ordinary pipe

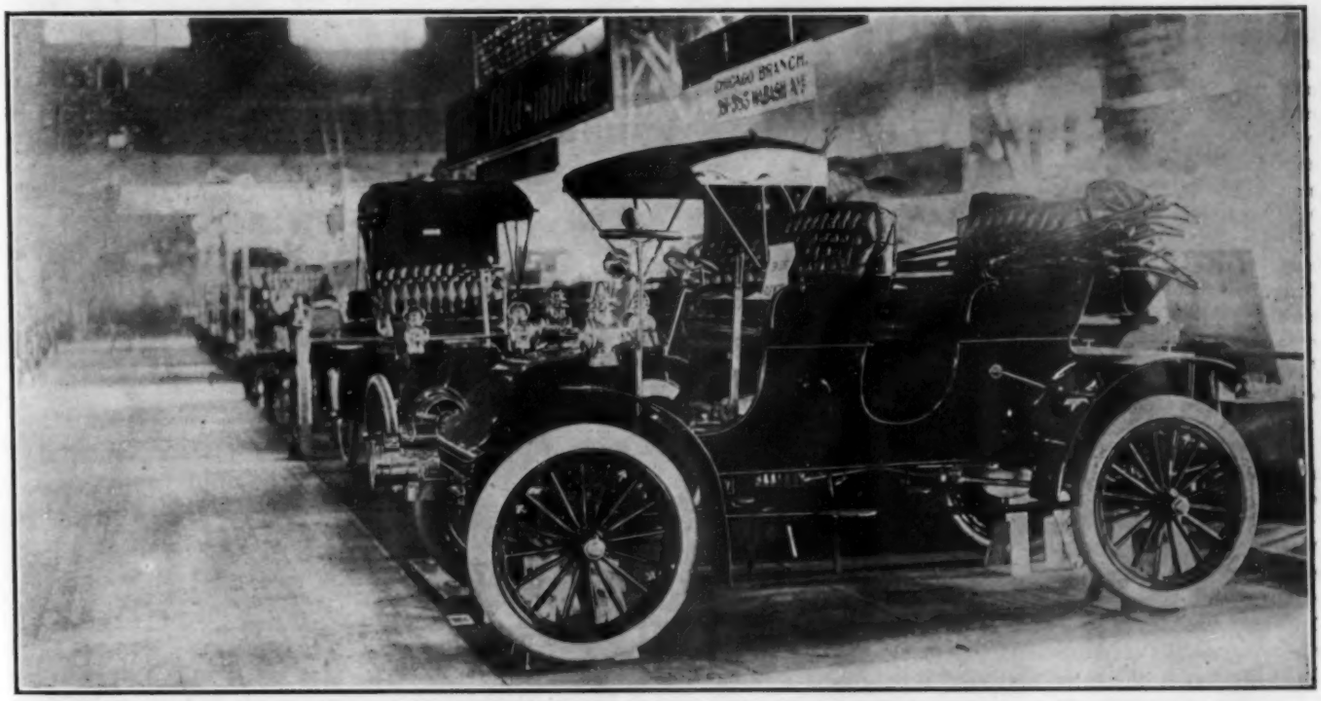


JAXON SINGLE-CYLINDER GASOLINE CAR.

connections on the machine. The drive clutch in the left face of the flywheel is unusually large and rarely needs adjustment. The transmission gears are of the sliding type, drive direct on the high speed and run in oil, while the bearings are oiled by force lubrication. A force feed lubricator as well as a gravity oiler are placed on the dash in front of the operator. Both inlet and exhaust valves are mechanically operated, and each pair can be removed from the valve cases by the removal of two nuts on each case. The coil springs on the exhaust valves are of unusual size and length. The spark plug is located on top of the side valve chambers, between the valves. The carbureters are of the float feed type. The wiring is carried on fiber posts attached to the sides of the frame. The cooling water is circulated by a pump through a new style multitubular radiator with which only four gallons of water is required to cool the two cylinders, which are jacketed with brass. No water tank is carried. A water dial to show the circulation is attached to the dash, together with a spark coil and the lubricators. The



SANTOS DUMONT GASOLINE CARS OF THE COLUMBUS MOTOR VEHICLE CO.



HAYNES-APPERSON STAND AT THE CHICAGO SHOW.—TWO SEATED GASOLINE TOURING CAR IN FOREGROUND.

frame is of armored steel and the axles are ball bearing.

AUBURN COMBINBATION CAR.

A combination runabout and tonneau, with detachable rear seats, was shown for the first time by the Auburn Automobile Co., of Auburn, Ind. The most noticeable feature is the hood, which, while somewhat resembling the square Mercedes pattern, has a peaked top and large square posts at the front corners. The radiator in the front is of transverse plain copper tubes. The car is driven by a single-cylinder horizontal motor at the back, with planetary change speed gearing, center chain drive and wheel steering. The motor and transmission gearing are mounted on a solid frame that is independent of the carriage frame.

RUSSELL UTILITY CAR.

A single seat road carriage handsome in design and beautiful in finish was shown by C. W. Russell, of Springfield, Ohio. It is equipped with a 9 horse power single-cylinder horizontal motor, has planetary transmission, center chain drive, tilting steering wheel, circulation forced by gear pump on the half-speed shaft, carbureter of the float feed type of special design, lubrication to all bearings forced, wheel base long and the body carried on long elliptic springs.

Among the many trade visitors to the show during the week was H. L. Jespersen, buyer for the sporting goods department of R. H. Macy & Co., of New York, who has been making arrangement with Western manufacturers for the display of their automobiles in the permanent exhibition on the ninth floor of the immense new retail establishment on Broadway and 34th Street, into which the company moved just before the holidays. By the middle of the week Mr. Jespersen had closed with the makers for the representation of the following vehicles: The Mobile, the Franklin, Baker, Oldsmobile, Northern, Grout, Long Distance, Prescott, Haynes-Apperson, Ajax, Cadillac, Darracq, Thomas, Flint, General, Desberon, Overman, Loomis, the foreign cars represented by Henri Fournier and the American machine of the Thompson Automobile Co., of Philadelphia.

A novel and unusual feature of the automobile show to be given by the Washington Automobile Dealers' Association in the Light Infantry Armory, beginning March 23, will be the exhibition of a section of the automobile battery, equipped with rapid fire guns, of the Northwestern Military Academy. A squad of cadets will accompany the battery and will give drills illustrating the practicability of the automobile for military use.

An automobile passenger line is proposed between Tullahoma and Lynchburg, in Moore County, Tenn., connecting several intermediate hamlets.

Foreign

WILSON-PILCHER AND ARIEL CARS AT LONDON SHOW.

BOLDLY ORIGINAL CONSTRUCTION

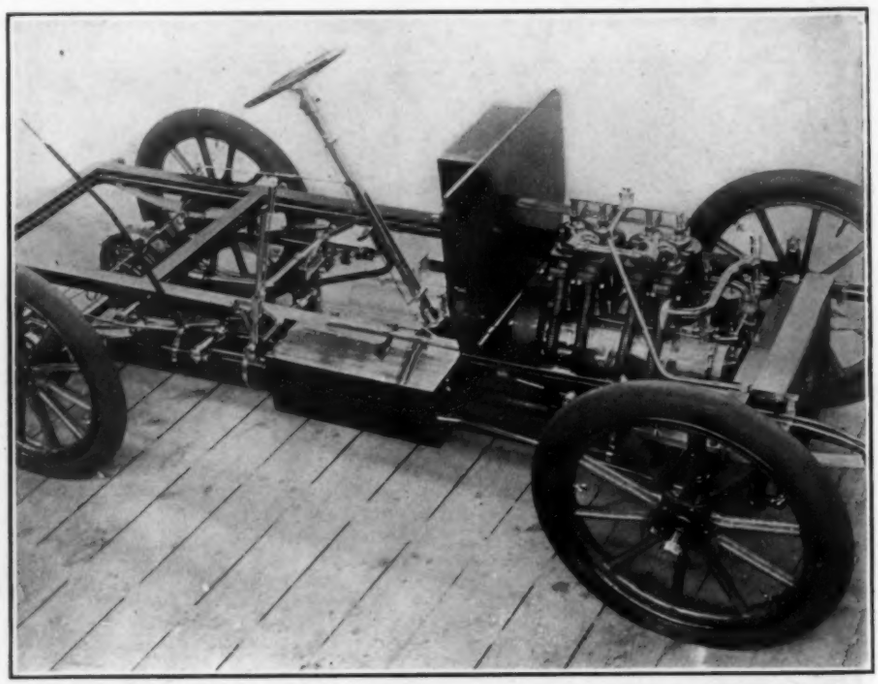
Perfectly Vibrationless Vehicle Produced by Horizontal Four-Cylinder Engine—Speed Changes by Independent Clutches — The Ariel High-Speed Motor with Flexible Metallic Exhaust Tubing.

Staff Correspondence.

LONDON, Feb. 7.—For the first time at any show the public have been permitted a view of the inwardness of the Wilson-Pilcher car, which is entirely the offshoot of an English brain, and the production of an English works. The firm of Wilson & Pilcher were just ordinary engineers in Westminster, remarkable particularly for the fact that the junior partner, Mr. Pilcher, was particularly keen on solving the problem of human aviation. By means of most ingeniously constructed kites or soaring planes attached to his body he did succeed upon several occasions in soaring and skimming a considerable height and distance. But like so many of the plucky experimentalists who have sought to conquer the kingdom of air, he soared once too often, and falling suffered such injuries that he died therefrom. But this by the way. His partner, Mr. Wilson, adhering to earth, has, after two years' work and experiments, produced an automobile which in its way has no equal at present. It is without any doubt the most vibrationless car on the market, not excepting even the latest Mercedes vehicles which have reached this country. I have seen a tumbler full to the brim of water placed upon the driving seat while the engine was running light at over 500 revolutions per minute, and never a drop spilled. Moreover, the engine can be slowed so that she just crawls around and no more. From the diagram produced herewith it will be seen that the motor is a four-cylinder balanced horizontal water-cooled, governed engine, set forward of the dashboard beneath a motor bonnet, made unfortunately of a somewhat unsightly form.

FOUR-HORIZONTAL OPPOSSED CYLINDERS.

The cylinders are in opposed pairs, and the explosion strokes are so timed in each that the drive is as perfectly balanced as may be. The forward end of the engine case is slung to a pivotal bearing depending from an inverted V truss on the main frame, and its rear end is bolted to the aluminum gear case. The transmission consists of a central line of shafting, in linear continuation of the engine shaft, through two epicycloidal reducing gears with approximate ratios of 1 1-2 to 1 and 3 to 1, to the bevel wheels surrounding the balance gear on the driving axle. The epicycloidal trains of gearing giving the different changes of speed are actuated by their friction clutches of the direct acting cone type, and all changes of speed can be made without taking out the main driving clutch. It will be noticed from the diagram that the flywheel is built with rearward raking arms, which is done to make the modern shape of bonnet possible, while the arms themselves are coarsely pitched



CHASSIS OF 16-24-HORSEPOWER ARIEL CAR AT CRYSTAL PALACE SHOW.

to hurl a current of air backwards on to the engine. The engineer to the company is a particularly ingenious individual, for the firm has appeared at this exhibition with a novel form of induction coil which provides a means of certain and accurate ignition in any number of cylinders with the use of only one trembler or contact breaker, thus avoiding the necessity of providing a separate one to each cylinder.

FLEXIBLE EXHAUST TUBING IN ARIEL.

The chassis of the 16-24 horse power Ariel by the Ariel Motor Company, of Birmingham, was undoubtedly the talk of the Crystal Palace. The bore of the four-cylinder water-cooled engine is 3 15-16, and the stroke 4 1-4 inches, so that it will be noted the cylinders are of small volume for an engine of this power. But to compensate for this the engine is run at very high speed, 1,800 to 2,000 revolutions being about its speed when going all out. A notable feature is the employment of flexible metallic tubing for the exhaust, this being adopted to avoid straining of joints due to expansion and contraction. Just clear of the forward cylinder a small gauge covered dome encloses a little air valve on the induction pipe between carbureter and induction valves and up to a certain point serves much the same purpose as the diaphragm-controlled air valve applied to the Krebs carbureter. Also the sparking plugs are provided with a specially formed outside spark gap, which was devised so soon as the characteristic of the jump spark consequent upon the outside gap was made public.

The radiator which is fitted in front and below the frame is of a particularly neat pattern, being formed of a nest of vertical tubes with cross tubes in rear. Ball and roller bearings are fitted to all but crank pins. In one particular the chassis may not perhaps be absolutely fashionable, for it is of tube, but the members thereof are so well braced and trussed that I should prefer it to many of the stamped steel frames which have been so suddenly thrown upon the market.

Both Germany and Austria contemplate the establishment of automobile museums where old and discarded models of automobiles and motors may be permanently exhibited. So far, only a small nucleus of exhibits has been secured, probably because few persons care to commemorate their failures. For the sake of the inventors who in all countries go on inventing what has been invented before, and for the moral benefit of those owners of automobiles who wish their own "improvements" incorporated in their purchases, the idea may be worth realization, but as nobody in particular is financially interested in the benefits that might accrue from organizing a museum, the project seems not likely to materialize.

A. Darracq has been re-elected president of the French Automobile and Cycle Manufacturers' Association.

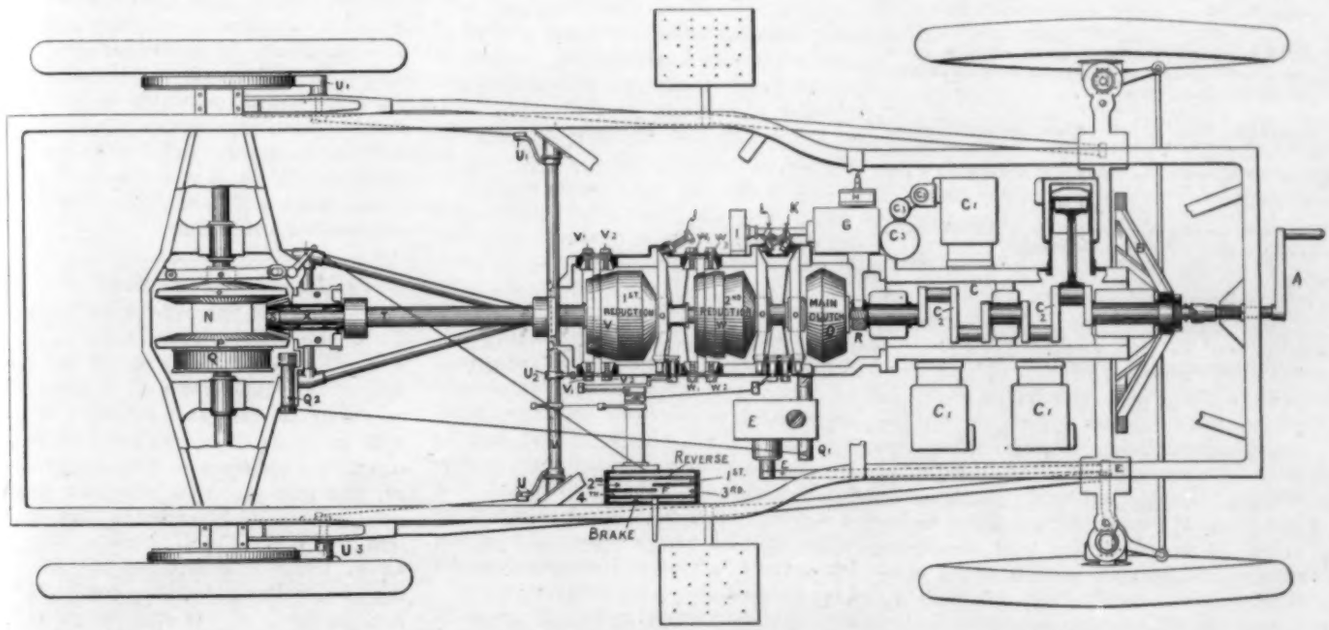
NEW YORK CLUB CONFERS WITH FIRMS USING TRUCKS.

Considerable interest in the plan of the Automobile Club of America for holding a contest for motor trucks and delivery wagons in May was expressed by the representatives of leading express companies, department stores and other commercial institutions similarly interested in transportation and delivery problems, at a conference held in the club rooms February 19. The conference was called by the contest committee of the club, composed of Messrs. John A. Hill, Emerson Brooks and Roland R. Conklin, invitations having been sent to 75 users of business automobiles in New York.

Ten concerns were represented at the conference, including Bloomingdale Brothers, by W. G. Lipsey; the West End Storage Co., by A. Blumenthal; the National Express Co., by J. S. Getty; the United States Express Co., by L. P. Starkweather; the Arnold, Constable Co., by G. W. Wilson; Stern Brothers, by J. E. Kent; Adams Express Co., by A. Hirschman; Simpson & Crawford, by W. Krummer; the Niles-Bement-Pond Co., by Henry M. Cleaver, and the American Express Co., by George W. Slingerland.

Several important suggestions for the contest were made by these representatives and the contest committee was

(Continued on page 267.)



CHASSIS OF WILSON & PILCHER, 1903 MODEL, CHAINLESS GASOLINE AUTOMOBILE EXHIBITED AT THE CRYSTAL PALACE SHOW.

A Starting gear.
B Fly-wheel of motor.
C Motor crank chamber.
C1 Motor cylinders.
C2 Motor crank.
C3 Carbureter.
D Main clutch.
EE Steering gear and rods to front wheel.
F Speed changing levers and brake handle.
G Oil pump to lubricators.
H Commutator.
I Water pump.
J Adjusting screw for 1st. reduction gear.
K Adjusting screw for 2nd reduction gear.
L Adjusting screw for main clutch.
M Reversing gear.
N Compensating gear.
O Forward bevel drive.
P Backward bevel drive.
Q Internal brake drum.
Q1 Foot lever working same.
Q2 Connecting levers to same.
R Screw gear drive to pumps.
S Maindrive bevel pinion.
T Universal joint shaft.
U Brake shaft.
U1 Levers working road wheels brakes.
U2 Automatic clutch release with brake action.
U3 Road wheel brake drums.
V First reduction gear.
V1, V2 Outer friction ring adjustment on V gear.
W Second Reduction gear.
W1, W2 Outer friction ring adjustment on W gear.
X Maindrive roller bearing.

THE AUTOMOBILE

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SATURDAY, FEBRUARY 28, 1903.

AUTOMOBILE LEGISLATION.

With thirty odd automobile clubs in existence which claim a more or less national representation of automobile interests, the time would seem to be ripe for arriving at some unity of opinion as to what kind of automobile legislation is required, if any, and what kind should be resisted. A sanguine person might even think that we should all, by this time, be agreed upon the proper means for resisting legislative impositions and should know with some accuracy what sort of compromise with opposing interests or prejudices can be effected.

The actual state of affairs, however, tends much more to show that motorists either do not know themselves what legislation should be enacted, or that they are so blindly opposed to all legislation on the subject that they can find absolutely no common ground on which they can stand in peace with the majority of citizens.

Some two dozen automobile bills and amendments are before various legislatures, and several automobile laws are on the statute books of the various states, and all of them are commonly designated as anti-automobile measures, while varying greatly in terms and general import.

If any automobile organization ever drafted a bill that came within gunshot of being acceptable alike to the non-motorists who insist on legislation and to the motorists who are affected by legislation, the fact has not come to be generally known. Yet it is one of the most strongly voiced and most just complaints that the laws vary so much from state to state, and from county to county, that motor vehicle drivers, however law-abidingly inclined, can never be sure of keeping within their rights when passing from one jurisdiction to another.

The Automobile Club of America made one attempt to unify the legal provisions in the State of New York, but the bill was so full of loopholes for bickerings and non-enforcement that it could not serve as a model for other commonwealths. It has been patched and patched again, till none of the original vestment is now visible. The main trouble with it from the beginning was that it was drafted from a viewpoint "within," and not one of broad consideration of the rights and privileges of all road users.

Withal, it seems clear that the only practical method of combating a maze of conflicting bills from without, consists in introducing a counter bill so moderate and sensible that it will disarm opposition, and, for the safe of unity between the various commonwealths, it would even be preferable to surrender some portion of those rights to which the motorist feels entitled, rather than to challenge the tinkering propensities of legislators and risk rejection in one state of what has been approved in another.

It has been the fashion in the automobile world to speak lightly of the competency of magistrates to adjudicate automobile cases and it is therefore often considered necessary to tie them hand and foot by specific enactments, defining their authority in picayunish legal provisions. But it is evident that the bill which motorists might hold in reserve wherever new and burdensome legislation is proposed, would have the best chance for acceptance (without stultifying amendments), the more it dealt with the question in its large features exclusively, leaving the interpretation to the judges. This also would provide for the gradual abatement of popular prejudices through the gradual education of the judges. Changes in public opinion would soon be reflected in their findings, if some leeway were left them. In our anxiety to get all our rights we lose them all, as the past has abundantly shown.

The question at present seems to be whether it is better to have complicated specific laws in bewildering variety, or to suffer some slight and temporary variations in the administration of one statute law, of less stringent wording but common to all states.

In these days of fast mails and telegraphic communications it should be no superhuman task for the automobile clubs and other organizations to agree upon an all-around acceptable draft for a bill, to have it passed upon informally by committees of non-motoring road users in the various states, to have it amended until finally it meets reasonable requirements, and, at length, when it has received a general indorsement by the opposing factions and the benefit of wide-open discussion in the press, to agree also on a manner of procedure for introducing it in the legislatures to take the place of all existing specific statutes.

This is only a mere outline of the first steps which seem necessary if we shall avoid becoming the laughing stock of the world, through a mediæval diversity of provincial laws on a subject which clamors distinctly for unity of action, and if, indeed, we shall not become the butt for ridicule from our own better enlightened children who, from their greater familiarity with mechanical locomotion, will point with scorn to our cackling interference with a great movement, as we point today to the burning of witches at Salem.

Subsequently some more concerted action, all very simple, will be required to keep in check the amendment-makers in the state legislatures and prevent them from spoiling a reasonable *modus vivendi*, but the first requirement is a draft of a bill stating tersely and lucidly the principles of right and wrong in matters relating to automobile traffic, largely for the guidance of magistrates.

COLUMBIA'S AUTOMOBILE COURSE.

It was stated last year at the Columbia University in New York that a course in automobile engineering would be taken up at that institution of learning, and would be commenced on April 1 of 1903, with an estimated enrollment of thirty students. As set forth in THE AUTOMOBILE of November 15, 1902, this new department of Applied Science had been organized by Prof. F. R. Hutton, and Dr. C. E. Lucke was to direct the study of the internal combustion engine. The announcement of this step toward recognizing automobile engineering as a distinct branch among the professions, on a par with civil or electric engineering, was hailed with satisfaction at the time, as much in behalf of the university which signified its progressive spirit as for the sake of the automobile industry, which might profit from an influx of specially trained engineers and from having a recognized center for deliberations upon matters of construction and theory.

Unfortunately it seems now that no definite action has yet been taken by the trustees of the Columbia to authorize the special curriculum referred to, but the matter is still under consideration and the outcome may depend upon the amount of interest manifested from the outside, the trustees at present taking the position that the University should be, and is, prepared to meet any demand for educational facilities in this line as soon as such demand is

plainly substantiated, but not before. A distinction is made between a special course for special students, being the innovation proposed, and such general attention to motor vehicle data and problems as is even now included in the scope of the Applied Science school of which Professor Hutton is the dean. The university apparently has no desire to enroll, for a special course, students who may not be possessed of sufficient general information to properly absorb such advanced engineering knowledge as the course would necessarily include, and, on the other hand, it may be doubtful at present whether a sufficient number of students for the proposed special course can be enrolled, if all who apply for admission to it are not accepted.

It may be of interest, under these conditions of uncertainty, to know what the university does now in recognition of automobilism as a new factor in Applied Science. In connection with the lectures on locomotive engineering, Professor Hutton has lectured several times on railless traction, dealing in a general way with the various types of traction engines and motor cars, but more important is the fact that the faculty tests automobiles as a part of its regular work, and undertakes specific tests of motors upon request by owners or builders. The gas engine and other forms of the explosion engine are dealt with in the regular course under direction of Dr. Lucke. The mechanical laboratory affords all necessary facilities for study and tests of engines, including such details as spark plugs and carbureters and extending into such difficult work as the determination of the properties of explosive mixtures.

It is announced by cable that the French government has finally given its consent to the Paris-Madrid race, thereby relieving the automobile industry of much anxiety. The race will be run partly *par équipes*, that is, manufacturers may enter teams of five cars and awards will be made according to their average performance, the system being in the nature of a premium on reliability and an offset to chance accidents.

Owing to requests by American automobilists the United States Treasury Department has ruled that automobiles shall be admitted without paying duty for a period of four months, provided their owners give a bond. This is intended as a convenience to foreign automobilists who bring their machines into this country for touring or exhibition purposes.

An amendent to the Cocks law to compel vehicles of all kinds to show a red light in the rear at night is desired by members of the Automobile Club of America.

Parliamentary Aid for Irish Course.

Staff Correspondence.

LONDON, Feb. 18.—It is rumored here that the Gordon-Bennett race is now a certainty for Ireland, as the necessary bill to legalize its running by the Automobile Club of Great Britain and Ireland will be introduced into Parliament by a member of the Cabinet. The measure being thus made a Government Bill is sure to go, and if the rumor which comes from a fairly authentic source is only correct, the Gordon-Bennett is booked for the Green Isle.

It is now almost a certainty that the Gordon Bennett contest will be held in Ireland. The latest advices from our London correspondent state that the necessary consent of the British Parliament will be secured by the introduction of a bill by a member of the Cabinet. This will practically make it a crown measure, and with such influences at Westminster and the unqualified support of the Irish people there is no doubt about the passage of the measure. We sincerely hope that the Irish course will be selected, if for no other reason than the precedent that it would create. Should the contestants from this side of the Atlantic carry the American colors to victory—and here's hoping—it would then follow naturally that the 1904 contest would be held on American soil. This would draw public attention to the possibilities of automobilism in a way that no contest of a purely national character could possibly do. The intense interest which the American people manifest in the America's Cup yacht races would be duplicated in the great international automobile race.

New York Club Confers With Firms Using Trucks.

(*Continued from page 265.*)

given many points for its guidance in arranging the program of the event. It was agreed by the members of the contest committee, all of whom were present, and the visitors that any test limited to a few days should be principally a test of the working capacity of the automobile in regard to its mobility and convenience, as economy could only be decided by protracted use.

G. W. Wilson, of the Arnold, Constable Co., gave some interesting figures concerning the cost of electric vehicles. A record kept of the company's wagons showed that they were operated 20,000 miles since last May at a cost of 6 cents per mile, the total cost, including labor, repairs and electricity, amounting to 95 cents per day for each, exclusive of driver's wages.

J. M. Hill brought out the point that the power of an electric automobile was expended much more rapidly by frequent stops and starts than if the machines were used on a continuous run. He produced figures showing that an electric delivery wagon weighing 3,000 pounds was driven on a continuous run at the rate of ten miles an hour for 51 miles on a single charge, while the same wagon, driven at the same rate of speed, with ten stops per mile, could only be driven 35 miles on one charge.

A. Blumenthal, of the West End Storage Warehouse, said that his company had found battery wagons very expensive and that they frequently ran out of their charge, so that it was risky to send the wagon more than 25 or 30 miles. For short hauls about the city, however, he was emphatic in his praise of the electric machine.

W. G. Lipsey thought such a test as the club proposed ought to include many sudden stops, as much difficulty had been caused him by broken parts from such jars. He complained of the policy of the insurance companies in requiring gasoline to be kept outside the automobile storage rooms, thus making the use of vehicles operated with this fuel expensive. J. S. Getty thought the proposed test ought to include backing against the curb and through difficult passages.

L. P. Starkweather, of the United States Express Co., said that he was compelled to use electric motor trucks exclusively, as his business required trips across the ferries and ferry companies refused to carry gasoline or steam wagons. He had found his electric wagons superior in many ways to a horse team.

A fair test for gasoline wagons in such a contest as the club proposed would be 50 miles with a stop every mile, thought W. Krummer, representing Simpson & Crawford, while an electric wagon should have 25 miles or more with several hard climbs and at least one stop half way up the incline, and the test ought to last at least four days. He declared that his experience had been that an automobile would outclass a horse, especially in bad weather.

Henry M. Cleaver, of the Niles-Bement-Pond Co., had secured excellent service with a heavy truck, and its value had been especially demonstrated in hot weather when horses were in danger of succumbing to the heat.

The contest committee is now considering the suggestions received at this conference together with other data, and states that it has already heard from several prospective contestants and is assured of the success of the project. A report will be issued later.

NATIONAL GOOD ROADS APOSTLES IN ASSEMBLY.

WALKER, POPE, AND MOORE TALK.

President Moore Points Out Road Improvements Effected in Southern States by Convict Labor—Endorsement of Brownlow Bill for National Aid to Road-building Communities.

Staff Correspondence.

CHICAGO, Feb. 21.—Delegates from nearly thirty states of the Union attended the convention in the Auditorium last night called by the National Highway Commission, the National Good Roads Association and the National Association of Automobile Manufacturers. The general attendance for so important an occasion was disappointing, but the results of the convention are likely to be far reaching.

The committee on resolutions appointed by Chairman John Brisben Walker brought in the resolutions which follow, and Col. Albert A. Pope, of Boston, and W. H. Moore, president of the National Good Roads Association, and Frank O. Lowden, of Chicago, were appointed a committee to present them to Congress with the recommendation that that body act upon them as soon as possible:

TEXT OF RESOLUTIONS.

Whereas, The annual loss to the nation through bad roads, amounting to hundreds of millions, constitutes to-day the most important economic question before the American people, and

Whereas, It is inevitable that the rural free postal delivery will soon be universal in this country, and that these deliveries will necessitate the best of public highways, therefore, be it

Resolved, That the Senate and House of Representatives be petitioned by this convention for an appropriation of $20,000,000 for highway construction, to be assigned to the several states and territories which shall appropriate amounts equal to their assignments. This in order that each state and territory shall have examples of the best roadway constructed under the supervision of government engineers.

Resolved, That this convention commend to the country at large the example of Massachusetts, Connecticut, New York and New Jersey in their rapid progress toward scientifically constructed highways, in appropriating large sums upon condition that counties and towns shall contribute like amounts—one-third by state aid, one-third by the counties, and one-third by the localities benefited.

THE BROWNLOW BILL ENDORSED.

These resolutions are in effect an endorsement of the Brownlow bill for the establishment of a government bureau of highway improvement at Washington and a system of national aid in road construction upon the lines of the State aid laws of New York, New Jersey, Connecticut and Massachusetts. The bill was favorably commented upon by one or two of the speakers.

The convention was opened with a talk by Chairman John Brisben Walker, following which M. J. Budlong, the newly elected president of the National Association of Automobile Manufacturers, Honore Palmer, member of the Chicago City Council and ex-president of the Chicago Automobile Club, and Col. W. L. Dickinson, state commissioner of highways for Massachusetts, were appointed as a committee on organization. They nominated officers as follows: Col. Albert A. Pope, president; Parker H. Sercombe, vice-president, and E. D. Lobaugh, secretary.

An address of welcome on behalf of Mayor Harrison was made by Howard S. Taylor.

WALKER DWELLS ON LOSSES.

In his opening address Chairman Walker presented figures showing that the people of the United States sustain an annual loss of $900,000,000 on account of bad roads, through loss of time, wear and tear on horses, vehicles and harness, and inability to place farm and other products in market promptly to take advantage of increased prices. Chicago, he said, is a peculiarly fitting place for the holding of a good roads convention because her streets are so notoriously bad.

COL. POPE PROPHECIES PROGRESS.

Col. Pope, the father of the good roads movement, followed with an address in which he dealt at considerable length with the urgent need for good roads throughout the country, saying that there is nothing so important as the highway question; that all great movements have small beginnings and that we have just started in earnest in this one and cannot be stopped, any more than the movement can be stopped in Massachusetts, where the farmers were against it at first but are now all howling for good roads. He spoke of the influence of the bicycle and the automobile and of the many efforts to impose road taxes upon them. "You will see the time," he said, "when there will be fifty automobiles in the city to one horse, and when a man will be taxed for using a horse on the nice, hard, smooth roads; for the horse brings more filth, dirt and disease into the city than all other agencies combined. I love horses and will always own one, but I keep them in the country where they belong."

CRIME AIDS ROAD BUILDING.

President W. H. Moore, of the National Good Roads Association, was introduced as the man who originated the good roads train. He made an earnest address on the subject of convict labor in road building in the course of which he said that he was in Springfield, Ill., on the preceding day attending a legislative hearing on a bill for the employment of prisoners on the roads, at which all the labor organizations were represented and the wardens of the state prisons were present. They were unanimously in favor of withdrawing convict labor from competition with honest labor and of relieving the public of a part of the burden of their support by putting them to other useful work. Three committees, representing the different interests, were appointed, he said, to get togther on a bill along these lines, which would have the support of the 80,000 laborers of the state employed in trades with which the convict labor of 1,500 prisoners under contract comes in direct competition. In twelve southern states there are 5,224 convicts at work on the roads, at a cost per day's labor of 22 to 24 cents. Hundreds of miles of permanent hard roads are being built by them there, and the South threatens to lead the North in the matter of road improvement, although so far behind in other directions.

A humorous address on the roads of Mexico was given by Hon. Joseph G. Donnelly, former United States consul general to our neighbor republic.

Hon. Martin B. Dodge, director of the Office of Public Road Inquiries, urged co-operation by the national government, the state and the farmer, saying that so long as the entire burden falls upon the agriculturist he is unwilling to carry it.

BIG LOANS THE RATIONAL REMEDY.

Highway improvement under state aid in his state was the theme of a ten-minute talk by Hon. James H. McDonald, state highway commissioner of Connecticut, who also cited the marvelous growth of Chicago and other western cities as a result of borrowing funds for carrying on great works, and said that if Chicago would borrow $50,000,000 for street improvement she would increase the value of her property many fold more.

Senator H. S. Earle, of Michigan, and ex-president of the League of American Wheelmen, made a vigorous speech regarding the progress of the good roads movement in his state, saying that the state constitution will be changed at this session of the legislature so as to allow state aid, and then a state aid law will be passed. He made a plea for the residents of the cities to put their hands to the roller and help the farmers improve the highways.

Col. W. L. Dickinson, road commissioner for Massachusetts, also made a brief address.

Instrumental and vocal music enlivened the proceedings.

WINTON WILL PROBABLY CONTINUE TO ENTER IN RACES.

Special Correspondence.

CLEVELAND, Feb. 21.—Alexander Winton, of the Winton Motor Carriage Company, states that the report that he would cease racing after his present engagements were taken care of is a mistake. He admits that Mrs. Winton is much opposed to his driving a racing car, on account of the danger, and that she has tried to have him give it up, but that he has not promised to do so. He says he is greatly interested in speed contests, for the sport alone, and that he cannot make up his mind to quit the track.

TRADE SHOW IN HORTICULTURAL HALL IN PHILADELPHIA.

Special Correspondence.

PHILADELPHIA, Feb. 23.—The second annual Philadelphia automobile show will be thrown open to the public next Saturday night, and promises to turn out a financial and social success.

Horticultural Hall, where the show is to be held, will be placed in the hands of the decorators and carpenters on Wednesday next, and Manager Le Cato is determined that by 8 o'clock Saturday evening everything shall be in its place and ready for the opening.

The Automobile Club of Philadelphia, under whose protecting wing the exhibition is organized, will feature the social side of the show, and prominent clubmen from out of town will find a reception committee in constant attendance at "Stand 23."

The largest exhibit in the show will be that of Banker Brothers, which will require ten single spaces. The large line of vehicles handled by the Quaker City Automobile Company will occupy a space almost as large, while the exhibits of John Wanamaker and several other concerns will require many square feet of the somewhat limited floor space. Indeed, the early demands for space were too liberally complied with, and late comers were in many cases compelled to take sections not at all commensurate with the importance of the proposed displays.

Following is a list of exhibitors up to mid-day Saturday, but it is quite probable that ten or a dozen additional signed contracts for space will be received:

COMPLETE VEHICLES.

Banker Brothers—Autocar, Peerless, White, Pierce, Knox, Waltham, Orient Buckboard, Northern, Waverly automobiles and Orient and Holley motorcycles.

John Wanamaker—Searchmont and Cadillac automobiles.

Quaker City Automobile Co.—Oldsmobile and Toledo vehicles.

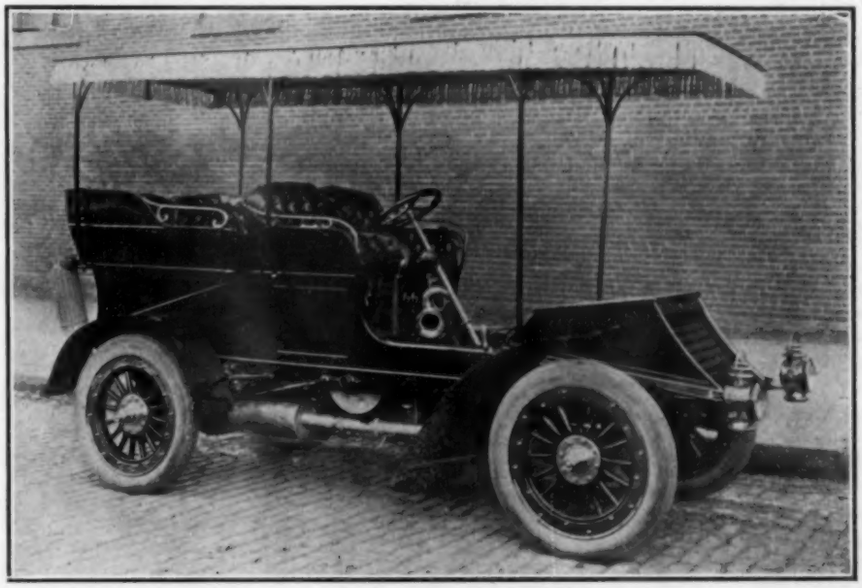
William Rudolph—Long Distance, Packard and American automobiles.

Sterling Automobile Co.—Rambler, Reber and Duryea carriages.

J. C. Wormley—Shelby and Sandusky vehicles.

American Darrcq Co.—Darracq vehicles.

The Rainier Co.—Electric automobiles.



RADFORD 45 H.P. CAR MADE IN BOSTON—See page 270

A. E. Maltby—Winton vehicles.

J. C. Brandes—Cudell & Co., Autos.

Pennsylvania Electric Vehicle Co.—Conrad gasolines and electric vehicles.

Jones-Corbin Co.—Crestmobiles and carriages of its own make.

Edwin De N. Sands—Moyea vehicles.

W. W. Gawthrop—Elmore automobiles.

A. Krouse—Thomas vehicles.

Thomas Automobile Co.—Its own gasoline carriages.

Motor Vehicle Power Co.—Automobiles of various makes.

MOTORCYCLES AND BOATS.

Hart Cycle and Automobile Co.—Racine motors, Racine vapor launches and Thomas Auto-Bi.

Charles Krouse—Motorcycles.

COMPONENTS, SUNDRIES AND ACCESSORIES.

Diamond Rubber Co.—Diamond tires.

Gibboney Bros. — Fisk and Firestone tires.

Standard Anti-Friction Co.—Beasley tires.

Twentieth Century Mfg. Co.—Automobile lamps.

Rose Mfg. Co.—Neverout lamps.

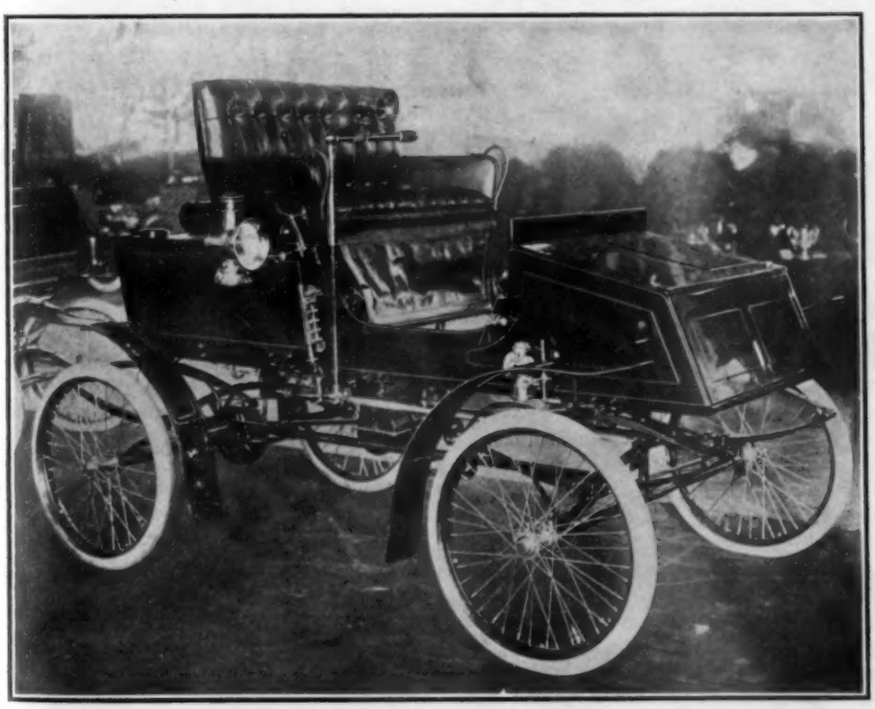
Dow Portable Electric Co.—Batteries and spark plugs.

Charles Schwarz—Automobile bodies.

Blaylock & Blynn—Automobile furs.

Edward B. Ryder—Automobile caps.

Automobile Club of Philadelphia—Headquarters.



LOCOMOBILE WITH DOUBLE GASOLINE TANK IN FRONT—AT CHICAGO SHOW.

Among prominent French cars not represented in the United States are the Chenard-Walcker, the Hautier, the Germain, the Delahaye, the Bardon and the Brouhot.

COLLIDING MOTORIST PRESUMED TO BE GUILTY IN ILLINOIS.

Staff Correspondence.

CHICAGO, Feb. 21.—A clause providing that the occurrence of a collision between an automobile and any other vehicle or person on the public highway shall be presumptive evidence that the motorist was exceeding the legal speed limit and shall place the burden of proof upon him to show his innocence is one of the most important provisions of an automobile bill that was introduced in the House of Representatives at Springfield last Monday.

Another important provision is the limitation of speed of motor vehicles to twelve miles an hour throughout the State of Illinois except upon streets or roads especially set aside for their use, under penalty of a fine of not less than $25 nor more than $100 for each infraction.

The bill was prepared by Representative Lyon at the suggestion of the Board of Supervisors of Lake County, which lies just west of Cook County and Chicago, and is inspired by the opposition of the residents of that county to the speeding of automobiles by Chicago motorists over their roads. The bill is headed straight through the House, the judiciary committee having reported it out with the recommendation that it be passed. Some of the members tried to strike out the provision reversing the custom of the law in considering everybody innocent until he is proven guilty, but the country members were too strong numerically and it stayed in. Whether such a provision will be valid in law may have to be decided by the courts.

The bill provides further that whenever the driver of an automobile approaches a horse that shows fright, he must bring his machine to a full stop until the animal has passed or is quieted.

Radford's Second Heavy Car.

At first sight Boston was pleased with A. L. Radford's second high-power car, recently finished for a Boston financier, who already owned an earlier Radford creation of 35 horse power. The new car is of 45 horse power and weighs 3,900 pounds. Its length over all is 13 feet, the wheel base 8 feet 6 inches. Tires and springs are very large and the upholstery is luxurious. Its full load is eight persons. Apparently it was these generous dimensions which caused the instantaneous approval that Bostonians are reported to have accorded the car, for it has not yet been in commission long enough to find out about its merits for rough use. Front and rear wheels are of 34 inches diameter and fitted with Goodyear detachable tires of five-inch section. They revolve on "Standard" roller bearings. The new "special" Upton transmission gear, giving two forward speeds and reverse, gives a maximum speed of 35 miles per hour. Tire flanges, hubs, levers and fittings are of manganese bronze. With the exception of the Upton gears, the tires and the muffler, the whole design and construction is originated by A. L. Radford, 43 Columbus Avenue, Boston.

EXPORTS OF AMERICAN AUTOMOBILES FOR FISCAL YEAR 1902.

Special Correspondence.

WASHINGTON, D. C., Feb. 19.—Some interesting figures have been compiled by the Treasury Department, from which it is learned that the total exports of automobiles and parts during the fiscal year 1902 were valued at $948,528. This is a big gain over the preceding year. Classified by the grand divisions of the world, the exports were destined as follows: Europe, $796,108; North America, $77,801; South America, $15,353; Asia, $22,832; Oceanica, $23,797; Africa, $12,637.

The United Kingdom figured as the largest purchaser of automobiles from the United States during the fiscal year 1902, the shipments to that country being valued at $671,553; France came second with $59,051, while the districts of Quebec, Ontario and Manitoba, taken together, were third, with $31,111. Other countries whose purchases help to swell the year's total were : Germany, $24,491; Mexico, $27,710; Philippine Islands, $14,216; British South Africa, $12,637; Austria, $13,106; Argentina, $10,203; Cuba, $11,152; Belgium, $7,797; Denmark, $9,905; Netherlands, $5,285; British Columbia, $4,828; Peru, $3,000; Chinese Empire, $6,645; British East Indies, $4,299; Japan, $9,513; British Australasia, $9,581; Brazil, $2,150; Italy, $2,200; Bermuda, $1,500; Hongkong, $1,175; Sweden and Norway, $1,697.

Cleveland Club Election.

Special Correspondence.

CLEVELAND, Ohio, Feb. 21.—At the annual meeting of the members of the Cleveland Automobile Club, held at the Hollenden Hotel, last Tuesday evening, the following directors were chosen: E. Schryver Reese, Fred T. Sholes, George Collister, Windsor T. White, Walter C. Baker, Charles Shanks, John Harkness Brown, T. E. Rook and Walter S. Root. They organized by the election of the following officers: President, E. Schryver Reese; Vice-President, Fred T. Sholes; Secretary, George Collister; Treasurer, Windsor T. White.

Mr. Collister states that an effort will be made to have a membership of 500 before the end of the season, and he believes it will reach that number. He says that an executive committee has been appointed with the intention of bringing in new members, and that the work will commence at once. In addition there have been some steps taken toward securing club headquarters. This will be an inducement to those who have not as yet joined, as there will be a great many conveniences in connection with it that cannot now be had elsewhere.

There has been some talk that the club would build a club house, but at the present time there is no intention of doing so. The members will be satisfied if they can secure good quarters by lease until they are in better position to erect a building for their exclusive use.

Good Roads in Wisconsin.

Special Correspondence.

WASHINGTON, D. C., Feb. 21.—The case commission appointed by Governor La Follette to consider matters of legislation relating to good roads held a meeting a few days ago, and the sub-committees reported. Chairman McGillivray, who presided, spoke of the necessity of the Constitutional amendment being adopted, claiming that States which were notable in road building had adopted State aid. He suggested that the proper way to direct matters was to place all road work contributed to by the State in charge of a central head, or engineer, and suggested that the State should pay one-fourth, the county one-half and the town one-fourth of the cost of building roads. He argued in favor of a county system of roads.

J. W. Thomas advocated the county system of roads and said while the amendment was pending the county system should be adopted. Mr. Harvey discussed the cost of building roads and said that his investigations showed that the macadamized roads could be built for $1,000 a mile. W. J. Middleton gave the cost of gravel or clay roads at from $400 to $800 a mile. Senator Hatton made a verbal report in which he advocated the county system. In its report to the Governor the commission recommended the levying of one-fourth of a mill tax for road purposes in all counties having an assessed valuation of over $6,000,000, a less amount to be levied in counties having a greater assessed valuation, no application of the supposed law to affect Milwaukee. The report will be in readiness for the Legislature in about a week.

The famous revolver-manufacturing firm of Smith & Wesson, Springfield, Mass., is considering the adoption of automobile trucks for its freight service. A storehouse for the machines will be included in the plans for a new building, for which the firm has contracted.

Six prizes of $250 each will be offered for the automobile races which are planned as a feature for the State Fair in Syracuse, N. Y., next fall. These prizes were decided upon by State Fair Commissioner A. E. Perren after a conference with members of the Syracuse Automobile Club. It is expected (locally) that Fournier, W. K. Vanderbilt, Jr., H. S. Harkness and Alexander Winton will appear in the races at the fair.